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Encumbrances in Digitization of Education: A Schema of NEP

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ABSTRACT
Futuristic Education is technology driven as we have seen the pandemic situation and the terror of being completely locked again and again. The pandemic has changed the education system overnight from offline teaching to online teaching and the technological driven education system has came up with different constraint. The National Education Policy 2020 (NEP 2020), is a widespread framework for elementary education to higher education as well as vocational training in urban and rural India. The policy aims to renovate India's education structure by 2021the policy proposes several measures for promoting digital learning and enhancing infrastructure requirements. The NEP 2020 emphasizes on the advantages of technology and making the youth ready for the future to face all kinds of challenges. India being a country with socio-economic dimension and regional diversity and for proper implementation of policy, emphasis should be done on the reachability of online teaching and training to all for the betterment of society and knowledge enhancement. Present study emphasizes on the different roadblocks which are there in the way of online teaching and learning.

Keywords: *nep, rural, urban, literacy gap, education, digital divide*

I. INTRODUCTION

An unprecedented worldwide lockdown has not only made our life miserable, but also imposed us to live inside our homes. Extremely rare events like this are witnessed only once in a lifetime or two. Indian government announced we need to adjust to this environment, by maintaining social distance among themselves (MoHA, 2020). The lockdown effect shuts almost all sectors which made large impact on economy in most of the countries (Stefana et al., 2020).Education sector also came to face the drawback of pandemic but with time online teaching was introduced so that education balance could be made as all other sector could be shut down and started but education is an ongoing process. Meanwhile the NEP,2020 formulation was going on which also includes the pillars for development of education.

The global education development agenda reflected in the Goal 4 (SDG4) of the 2030 Agenda for Sustainable Development, adopted by India in 2015 -it seeks to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" by 2030. To achieve such a goal reframing and rethinking is required to achieve the critical targets and goals (SDGs) of the 2030 Agenda for Sustainable Development.

The NEP 2020 replaces the previous National Policy of Education of 1986. In January 2015, a committee under the supervision former Cabinet Secretary T. S. R. Subramanian started the discussion process for the New Education Policy. Based on the report of the committee, in June 2017, the draft of the NEP was submitted in 2019 by a group led by former Indian Space Research Organization (ISRO) chief Krishnaswamy Kasturirangan. The write up of New Education Policy (DNEP) 2019 was later released by Ministry of Human Resource Development, followed by a number of public consultations.T74 Draft of NEP contains 484 pages. The Ministry undertake a rigorous consultation process in formulating the draft policy: "Over two lakh suggestions from 2.5 lakh gram panchayats, 6,600 blocks, 6,000 Urban Local Bodies (ULBs), 676 districts were received." (Venkateshwarlu, 2021)

Digital deprivation has been an ongoing issue in India even before the challenges brought on by the COVID-19 pandemic. This sudden transition of teaching methods to online classes made students and faculties in a confused mode. The online classes had turned out towards the question of learning quality (Crawford et al., 2020).

To implement and to be technically advanced NEP requires technological availability and access of resources by teachers as well as students, so to reach to every student through online mode accessibility of resources should be there. The key problem surrounding remote learning and online classes in the country is the issue of equitable access. Along with adequate penetration of internet and technology services, accessibility in this context also includes access to electronic devices such as computers and smartphones.

II. PRINCIPLES OF NEP

(MHRD, 2020) The fundamental principles of NEP that are for educational system as well as individual institution are:

- **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;
- **according the** highest priority **to achieving Foundational Literacy and Numeracy** by all students by Grade 3;
- **flexibility**, so that learners have the ability to choose their learning trajectories and programmes, and thereby choose their own paths in life according to their talents and interests;
- **no hard separations** between arts and sciences, between curricular and extra-curricular activities, between vocational and academic streams, etc. in order to eliminate harmful hierarchies among, and silos between different areas of learning;
- **multidisciplinarity and a holistic education** across the sciences, social sciences, arts, humanities, and sports for a multidisciplinary world in order to ensure the unity and integrity of all knowledge;
- **emphasis on conceptual understanding** rather than rote learning and learning-for-exams;
- **creativity and critical thinking** to encourage logical decision-making and innovation;
- **ethics and human & Constitutional values** like empathy, respect for others, cleanliness, courtesy, democratic spirit, spirit of service, respect for public property, scientific temper, liberty, responsibility, pluralism, equality, and justice;
- **promoting multilingualism and the power of language** in teaching and learning;
- **life skills** such as communication, cooperation, teamwork, and resilience;
- **focus on regular formative assessment for learning** rather than the summative assessment that encourages today's 'coaching culture ';
- **extensive use of technology** in teaching and learning, removing language barriers, increasing access for *Divyang* students, and educational planning and management;
- **respect for diversity** and **respect for the local context** in all curriculum, pedagogy, and policy, always keeping in mind that education is a concurrent subject;
- **full equity and inclusion** as the cornerstone of all educational decisions to ensure that all students are able to thrive in the education system;
- **synergy in curriculum across all levels of education** from early childhood care and education to school education to higher education;
- **teachers and faculty as the heart of the learning process** – their recruitment, continuous professional development, positive working environments and service conditions;
- **a 'light but tight' regulatory framework** to ensure **integrity, transparency**, and **resource efficiency** of the educational system through audit and public disclosure while encouraging innovation and out-of-the-box ideas through **autonomy, good governance, and empowerment**;
- **outstanding research** as a corequisite for outstanding education and development;
- **continuous review of progress** based on sustained research and regular assessment by educational experts.

III. DIGITIZATION OF EDUCATION

"Digital education is generating new learning opportunities as students engage in online, digital environments and as faculty change educational practices through the use of hybrid courses, personalized instruction, new collaboration models and a wide array of innovative, engaging learning strategies. Furthermore, a 21st century view of learner success requires students to not only be thoughtful consumers of digital content, but effective and collaborative creators of digital media, demonstrating competencies and communicating ideas through dynamic storytelling, data visualization and content curation." (Himmelsbach, 2019) Digital Technology for education is defined with any process where the teacher or learner uses digital equipment such as a personal computer, a Laptop, tablet, MP3 player, or console to access digital tools such as learning platforms and virtual learning environments (VLEs) to improve their knowledge and skills. The Learning with Digital Technology comprises of ICT products such as teleconferencing, email, audio, television lessons, radio broadcasts, interactive voice response system etc. (Bikas, 2001)

Digitization is the process of converting the content of physical media (e.g., periodical articles, books, manuscripts, cards, photographs, vinyl disks, etc.) to digital formats (Kaur, 2019). Digitization refers to the process of translating a piece of information such as a book, journal articles, sound recordings, pictures, audio tapes or videos recordings, etc. into bits. Bits are the fundamental units of information in a computer system. Converting information into these binary digits is called

digitisation, which can be achieved through a variety of existing technologies. A digital image, in turn, is composed of a set of pixels (picture elements), arranged according to a pre-defined ratio of columns and rows. An image file can be managed as a regular computer file and can be retrieved, printed and modified using appropriate software. Further, textual images can be OCRed so as to make its contents searchable. (Kaur, 2019)

The principles of NEP includes extensive use of technology and digitization is truly needed to increase the platform for connectivity of the students with the educators and the advancement in education system but the basic issue is how we will reach to all unless and until we cope up with the obstacles that are present in the environment.

Many roadblocks are present in the environment but the one discussed is digital divide in view of access of computer and internet among the Indians between urban and rural India.

3.1 Digital Divide

"The education of children cannot be done effectively online and to do so would damage education deeply and exacerbate inequities. Most disadvantaged children," he added, did not have "any support to handle online education at home and are in families combating deep livelihood crises, making them unable to cope with other challenges."(BBC News, 2020)

"The learning gap is likely to widen across high, middle and low-income families, as children from economically disadvantaged families cannot access remote learning."(Economic Times, 2022)

MoSPI did a survey to look over the access and use of information technology computer included devices like, desktop computer, laptop computer, notebook, netbook, palmtop, tablet (or similar handheld devices). However, Smartphone was not considered as computer. If a household member of age 5 years and above used internet to find, evaluate and communicate information from any location during the last 30 days preceding the date of survey, via any device, like, desktop, laptop, palmtop, notebook, netbook, smartphone, tablets, etc., it was considered as use of internet.

Percentage of households with computer and internet facility

All-India

Indicator	**Percentage**		
	Rural	**Urban**	**Rural +Urban**
households having computer	4.4	23.4	10.7
households having internet facility	14.9	42.0	23.9

Note: NSS KI (75/25.2): Key Indicators of Household Social Consumption on Education in India

Source: Ministry of Statistics and Programme Implementation 2019

According to NSSO data, only 4.4% of rural households and 23.4% of urban households own computers. Moreover, while 42% of urban households have a computer with an internet connection, the same is available to only 14.9% of rural households. The above table clearly defines the rural urban digital divide.

Increasing affordability of smartphones, growth in number of users in rural India, as well several government initiatives have led to the expansion of India's smartphone user base in recent years [5]. However, on the other side of this growth is the fact that there are still around 800 million people that do not have access to smartphones. The audio-visual content in online learning, whether in the form of video calls or downloadable/streamable videos, requires high-speed 4G internet. As per the ICEA report quoted above, in 2018, India had approximately 277 million VoLTE capable devices and more than 50% 4G device penetration across India. However, the share of smartphone penetration was only around 25% in rural areas. Given that 99% of rural internet users access the internet on mobile phones, this effectively means that a majority of students in rural areas do not have the tools required to access online classes.

3.2 Literacy Gap

We are trying to move fast with the technologies but at ground level when we come to see the gap in the literacy due to which access of information technology relates to difference between the gender, it seems to quite shocking in this era.

Percentage of persons of age 5 years and above ability to use internet and used persons of age 5 years and above able to operate a computer able to use internet used internet

All-India

persons of age 5 years and above	**Percentage**		
	Male	**Female**	Person
	Rural		
able to operate a computer	12.6	7.0	9.9
able to use internet	17.1	8.5	13.0
	Urban		
able to operate a computer	37.5	26.9	32.4
able to use internet	43.5	30.1	37.1
	Rural +Urban		
able to operate a computer	20.0	12.8	16.5
able to use internet	25.5	14.9	20.1

Source: Ministry of Statistics and Programme Implementation 2019

Along with a prevalent urban-rural divide, there also exists a deepening male-female digital literacy gap in India. Data from NSSO's 75th round national survey shows a significant gap between the male and female population in rural and urban areas with regard to the ability to operate a computer and use the internet. As shown in Table 2, only 8.5% of women in rural India are able to use the internet as compared to their male counterparts (17.1%). For urban areas, the percentage of users is significantly higher, but the gender gap exists.

IV. CONCLUSION

According to UNICEF, the closure of schools in 2020 has affected more than 1.5 billion children and young people worldwide, leading to a wide range of psychological and behavioural challenges. The increase in screen time not only impacts children physically but can also lead to heightened risk of online exploitation. The rise in the use of virtual platforms may expose young children to harmful virtual content which may also contribute to cyberbullying.

When it comes to addressing the digital divide as discussed previously, the NEP recommends use of television, radio and community radio for 24*7 broadcasts of educational programmes, including in regional languages. Whether such programmes can replace online classes and e-learning tools, and provide the same quality of education to students who do not have access to smartphones or the internet is up for debate. Certainly, the NEP doesn't seem to offer any specific recommendations to bridge the gender gap in digital literacy, nor does it directly address the physical and mental health consequences of online classes. It also doesn't seek to cover issues faced by students with disabilities while accessing online learning methods.

It can be concluded that though the NEP offers some progressive initiatives for development of e-learning tools and seeks to encourage equal access to technology, it misses the mark when it comes to addressing the grave structural challenges that characterise digital learning in India. Going forward, it is imperative to bring about convergence between the goals of the NEP and flagship schemes like Digital India that seeks to expand access to communication infrastructure and internet connectivity across the country. A key focus, therein, has to be on bridging the gender gap in internet usage and access to smartphones, and simultaneously making digital learning disability-friendly.

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