Technology in Education: NDEAR

Background Note

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Introduction

India is a diverse country with 1.3 million population, out of which two-third are youth (Census-2011). If we talk about the economic growth and development of any country, education is considered a national investment for creation of a knowledge society and contributing in standards of living. Education in India is second to none with 1.5 million schools, 900+ higher education institutions, 85 lakh teachers and about 33 crore students in the system. Though access and retention in the school education has substantially improved, imparting equitable, quality, lifelong learning and holistic education is the goal, which includes 21st century skills and Sustainable Development Goals (SDGs) as well. If India is to be seen as a world leader "*Vishwa Guru*" then planning and implementation for education embedded with use of technology needs to be strengthened.

The use of educational technology and information communication technologies (ICTs) in education is the need of the hour. It has the capability to reach out to every nook and corner of the country and bridge the digital divide by providing teaching, learning, assessment and continuous professional development solutions any time anywhere coupled with achieving scale and speed. It is with these perspectives that the National Education Policy (2020) lays great emphasis on the use of educational technology to enhance the access of educational opportunities, improve the quality of education, address concerns of inclusion and diversity and improveaccess, quality, equity, affordability and accountability of the educational system in the country.

Thus, meticulous use of educational technology and information and communication technologies (ICTs) can liberate the system and help achieve quality education in school and teacher education in the country.

Recommendations of NEP-2020

Given the pace and depth of technological developments worldwide, NEP 2020 calls for addressing the broader consequences of disruptive technologies that are relevant to

education. These include research, de-skilling and awareness raising to enable our education system to cope with the rapid and disruptive changes that places us individually and nationally at a perilous disadvantage in an increasingly competitive world. . The thrust of technological interventions will be for the purpose of improving teaching-learning and evaluation processes, supporting teacher preparation and professional development, enhancing educational access, and streamlining educational planning, management, and administration including processes related to admission, attendance, assessment, etc.

To achieve these objectives, NEP, 2020 envisions creating an autonomous body, the National Educational Technology Forum (NETF), which will be the vehicle for integrating technology into different aspects of school education and higher education. The NETF will have the following functions: i) to provide independent evidence-based advice to Central and State Government agencies on technology-based interventions; ii) to build intellectual and institutional capacities in educational technology; iii) envision strategic thrust areas in this domain, and iv) articulate new directions for research and innovation. It also talks about strengthening CIET to promote and expand DIKSHA as well as other educational technology initiatives. Further, the NEP, 2020 has recommended following key initiatives: i) to conduct a series of pilot studies for online education, ii) invest in creating digital infrastructure, iii) promoting appropriate online teaching-learning platforms, iv) creating eContents, digital repositories and their reliable dissemination, v) focus on addressing digital divide in the country, vi) leveraging technology for creating virtual labs for easy and equal access to all students, vii) training of teachers and incentivizing their digital literacy, viii) extensive use of online exams and assessments including on 21st Century skills, ix) emphasizing the importance of blended learning, x) as technology gets integrated, laying down standards will assume significance, and xi) a rich variety of educational software in all major Indian languages will be developed.

The Way Forward
In India, characterized by multifarious diversity and constraints in terms of availability of resources (ICT infrastructure, electricity, budget, skilled human resource), switching over to digital modes of education is a humongous task, as well as full of challenges. A decentralized planning and implementation with flesh and blood approach is the need of the hour for which various States/ UTs level organization such as SCERTs, School Boards, DIETs, BIETs, CTEs, IASEs and National level organizations such as NCERT, CBSE, NIOS, KVS, NVS

need to join hands for a change that will sustain post COVID-19 also. Such collaboration will help to continuously enhance the quality of education and skill development of the large student population and we can leverage the demographic dividend in coming years. In order to achieve the content-ICT-pedagogy integration and use of disruptive technology in the real sense, integration and convergence of policies, schemes, programs and services needs to happen with the merger of parallel structures following a multimodal approach and innovative strategies.

NDEAR stands forNational Digital Education Architecture with a vision to create a 'unified national digital infrastructure to energize and catalyze the education ecosystem'. Essentially, this is a technological framework that aims to enable existing systems to upgrade and become interoperable, while making available, the common building blocks and services for the creation of new tools and solutions. It is through these common building and services that NDEAR aims to energize and catalyze the digital education ecosystem. It is a 'distributed, adaptive and open socio-technical system with the properties of self-organization, scalability and sustainability'.