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Integrating Technology in Education: Insights from NEP 2020

Abstract

The National Education Policy 2020 (NEP 2020) is the Indian government's comprehensive reform initiative with the intention of restoring the education system of India to keep pace with this fast-changing and technological era. The policy seeks to develop a more inclusive, equitable, and vibrant education system that gets ready students for the challenges of the twenty-first century. The NEP 2020 points out how technology may be used and integrated into school and higher education, enabling India to meet today's demands for high-quality educational standards. The purpose of this paper, which is based on secondary data, is to explore the NEP 2020 recommendations for utilizing and integrating technology into educational settings. It also outlines the initiatives recommended by NEP 2020 to address various concerns and challenges in advancing digital and online learning in India. NEP 2020 suggests creating the National Educational Technology Forum (NETF) to facilitate collaborative discussions on effective technology integration in school and higher educational institutions. Virtual laboratories will also be set up, in addition. Regional languages are also given specific attention since e-contents for learning and instruction will be developed using them.

Keywords: *National Education Policy 2020, Technology, National Educational Technology Forum, Online and digital Education, Artificial Intelligence*

Introduction:

Education is the basic basis of personal growth and development, and its impact resonates throughout society, fuelling the advancement of the country. A country will not prosper until it educates all of its people living there, regardless of class, ethnicity, caste, or terrain. Education is the necessary instrument for preparing people for their responsibilities and informing them of their rights. Education enables future generations to create a better tomorrow by providing them with the knowledge, skills, and resilience necessary to overcome the challenges and complexity that lie ahead (Alam, 2021). The First National Education Policy, introduced in 1968, advocated for equitable educational opportunities and called for a "radical restructuring" that aimed to promote national unification and greater cultural and economic growth. Then, in 1986, another national education policy was put forth with a focus on ensuring equitable access to educational institutions and eliminating inequalities, particularly for Indian women.

On July 29, 2020, the Cabinet of India adopted a new National Education Policy with the intention of implementing various reforms to the country's current educational system. NEP 2020 is seen as a revolutionary move forward in the advancement of education (Kadge & Jain, 2022). NEP 2020 seeks substantial reforms in professional and vocational education, higher education, higher secondary, and basic education, along with research, with the intent of transforming India's education system into a completely contemporary one by 2030. Among the policy's key issues is the utilization of technology in classroom during learning and instruction (Aisha & Ratra, 2021).

Due to COVID-19 pandemic, the world experienced several obstacles in various disciplines, particularly education. When it is not possible to use conventional methods of instruction, new initiatives should be taken to find alternative ways to educate and learn. Through online learning, technology facilitated educational activities throughout the epidemic. The educational system had to be forced to undergo a shift. In this context, the National Education Policy 2020 emphasizes the beneficial effects of technology. There have been initiatives to make India "self-reliant," and it's reasonable to say that a major role of technology would play in these efforts (Sharma, 2022).

The twenty-first century is the age of technological and scientific advancement, and all societies throughout the world have evolved into information-intensive

societies. The 'Digital India Campaign', as envisioned in NEP 2020, is instrumental in propelling the nation towards a digitally advanced society and a knowledge-based economy, thereby transforming the country's landscape. The content and pedagogy of classroom instruction will be revolutionized by the integration of advanced technologies such as machine learning, AI, digital boards, handheld gadgets and various educational software and hardware etc. To fully realize their potential, comprehensive research at the intersection of technology and education is required. The NEP 2020 places a high priority on the strategic implementation and adoption of technology in Indian educational settings to improve teaching strategies, student outcomes, assessment and evaluation procedures, and create a more effective and efficient learning environment.

Research Objective:

1. To study the potential applications of technology and its integration into educational settings in light of NEP 2020.
2. To study the concerns and possible initiatives related to online and digital education within the NEP 2020.

Research Methodology:

This study is conceptual and follows descriptive analysis with a qualitative approach. It is based on knowledge and insights from the Indian government's technological initiatives as documented in government reports and various secondary sources such as web articles, online journals, and research papers.

Discussion:

1. Potential Applications of Technology and Its Integration into Educational Settings

Considering the global pace and extent of technological development, NEP 2020 advocates for addressing the wider consequences associated with disruptive technologies relevant to education. Enhancing learning, teaching and evaluation procedures, facilitating teacher professional growth and instructional preparation, raising educational access to divyang students, optimising educational planning, eliminating language barriers, management, and administration, including admission, attendance, and assessment will be the main focuses of technology interventions (Kumar, 2021). This demonstrates that education and technology have a mutually beneficial connection.

National Educational Technology Forum (NETF)

National Educational Technology Forum (NETF) will be created as a self-governing organisation to facilitate the open exchange of views on the appropriate use of technological tools in school settings and higher educational institutions (Kumar, 2021). NETF will serve in enhancing planning, grading, and other facets of education. The objective of NETF is to enable the decision-making process for the adoption, deployment, and optimal use of technology in educational institutions. This involves guiding how technology should be introduced into these institutions, ensuring it is implemented effectively, and maximizing its benefits for educational purposes. NETF will perform the following functions.

- It will provide impartial, evidence-based recommendations on technology-based solutions to both the central government and state government agencies.
- It will develop the infrastructural and intellectual capacities needed for the application of educational technology.
- In this domain, it will envisage strategic thrust areas.
- It will open up new possibilities for research and innovation.

Furthermore, NETF will provide a steady flow of credible data from various kinds of sources, including educational technology designers, professionals, and researchers, and will collaborate with them to analyse the data (Mir, 2023). The NETF will host various types of conferences and workshops to elicit feedback from researchers, entrepreneurs, and practitioners seeking to foster the creation of a rich body of practices and knowledge.

E-Content at DIKSHA platform

For the benefit of students at all levels, innovative instructional software will be developed and made accessible in all of the major Indian languages. These software tools will be especially useful for students having disabilities and will be accessible to a broad range of users, including students who reside in remote areas. Various states and institutions, including CBSE, CIET, NCERT, and NIOS, will continue creating e-content materials for learning and instruction in multiple regional languages (Mir, 2023). These materials will ultimately be

uploaded on the DIKSHA portal, which will be utilized as well for professional improvement of teachers through e-content.

Artificial Intelligence (AI)

The NEP also emphasizes the integration of Artificial Intelligence (AI) in education. AI is expected to be a valuable tool for professionals such as teachers, doctors, and engineers, as it has the potential to match or even exceed human performance in certain predictive tasks. National Research Foundation (NRF) will start or increase its efforts to carry out research in technology. In the field of artificial intelligence, NRF might look into the following three-pronged approach: (a) basic AI research advancement, (b) application-based research development and implementation, and (c) advancing worldwide research initiatives for dealing with challenges in health care, agriculture, and climate change using AI.

Higher education institutions (HEIs) will assume a proactive role in researching disruptive technologies, developing early versions of educational materials and courses, including online courses in advanced fields, and evaluating their effects on particular domains, such professional education. Because disruptive technologies will render certain occupations obsolete, effective and high-quality ways to skilling and deskilling will become more crucial in order to generate and maintain employment. HEIs will provide specialized training in job preparedness that will be incorporated with higher education frameworks and skills. Universities would like offering Ph.D. and Master's courses in core disciplines like Machine Learning, along with multidisciplinary areas "AI + X" and professional domains including medical care, agriculture, and law (Alam, 2021). They may also create and provide courses on platforms like SWAYAM. HEIs may accelerate adoption by combining online courses with conventional teaching methods in the undergraduate and vocational studies.

2. Concerns and Possible Initiatives Related to Online and Digital Education

During the Coronavirus epidemic, India managed to give quality education to students through online e-learning platforms. NEP 2020 recognised the need to take advantage of technology in the field of education. The NEP 2020 seeks to expand and optimize the existing ICT-based educational initiatives. However, some concerns exist, such as

- The accessibility of reasonably priced internet and computer access, especially in remote areas.
- Another issue that needs to be addressed is the requirement for teachers to undergo appropriate training and development to become proficient in online teaching. A teacher who is competent in a regular classroom might not be an effective one in a virtual learning environment (Kadge & Jain, 2022).
- Another problem that has to be considered is online assessments. It requires a particular approach. Conducting large-scale online exams has a number of challenges, including limitations on the sorts of questions that may be posed in an online setting, dealing with networks and disruptions in power, and avoiding unethical behaviour.
- Some courses or subjects, including scientific practical and performing arts, have limitations in the online and digital education space, but these may be partially resolved to some extent by inventive measures (Kadge & Jain, 2022).

To keep pace with the advent of digital technologies and also the growing significance of technology in classroom instruction and learning at all levels of education, from school to higher education, NEP 2020 suggests the following initiatives:

- Credible agencies like CIET, NETF, NIOS, IGNOU, IITs, and NITs will perform pilot studies for evaluating the benefits and downsides of incorporating online education.
- Considering the diversity, complexity, and penetration of devices in the country, India has to invest in the development of digital infrastructure with integrated digital content in education sector. Due to the fast advancement of technology, digital infrastructure will keep ensuring that technology-based solutions are not obsolete.
- SWAYAM and DIKSHA, two online e-learning platforms, will be expanded to provide teachers a comprehensive, well-organised collection of tools to aid in assessing their students' progress (Deep & Kumar, 2023).
- NEP 2020 focuses on creation of a digital library of content, comprising coursework, educational games and simulations. Additionally, to gamify Indian art and culture, user-friendly applications in several languages will also be designed for both teachers and pupils.

- To bridge the digital gap, traditional media platforms including the radio, television etc. will be used extensively for broadcasting and telecasts.
- NEP 2020 aims to establish virtual laboratories that ensure all students have access to high-quality learning opportunities by employing virtual e-learning platforms for example SWAYAM, DIKSHA, and SWAYAMPRABHA.
- Teachers will take part in a comprehensive training program covering learner-centred pedagogy and the use of online tools and platforms to create high-quality online material (Deep & Kumar, 2023).
- NEP emphasizes on the creation and use of an online assessment framework through major bodies such as NAC or PARAKH, NTA, and school boards.
- To enable learning environments for optimal learning, many effective blended learning models will be employed.
- Standards of technology, pedagogy, and content for online learning will be developed by NETF along with other appropriate organizations. These criteria will be helpful for states, boards, schools, higher education institutions, and other organizations in constructing e-learning guidelines (Mir, 2023).

Conclusion:

India is making significant strides in technological advancement, with technology now being a key element in delivering high-quality education. Nowadays, integrating technology in schools is essential for fostering lifelong learning and meeting the evolving demands of the modern world. The National Education Policy 2020 emphasizes the significance of incorporating technology into education and stresses the need to make higher education accessible to all deserving students, regardless of their location or economic status. To address the needs of 21st-century education, it is crucial to invest in several areas: developing digital infrastructure, creating high-quality e-content, implementing interactive virtual labs, and strengthening institutional capabilities. This will create a cohesive system that promotes innovative teaching, learning, and research. The success of these strategies depends on their effective implementation, overcoming challenges, and increasing awareness among students and educators. Achieving the goals of technology-integrated education in India will require a collaborative effort from all stakeholders, focusing on innovation,

inclusivity, and sustainability. By addressing these needs comprehensively, India can ensure that technology not only enhances educational quality but also makes learning opportunities available to everyone.

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