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New Education Policy NEP 2020: Importance of Technology Use, Integration and STEM Education

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Abstract

Education is essential for realizing one's full potential, creating a just and equitable community, and advancing national progress. A well-defined, visionary and futuristic education policy is a must for every country as education is the key driver of economic and social progress. Different countries adopt varied education policies according to their tradition and culture. Universal high-quality education is the most effective approach to develop and use country's vast skills and resources for the benefit of individuals, society, the country, and the globe. The Union Cabinet of India approved the National Education Policy 2020 (NEP 2020) on July 29, 2020, which defines the goal for India's new education system. By replacing the earlier 1986 National Policy on Education. NEP 2020 envisages to provide a comprehensive framework for basic through higher education, as well as vocational training.

The current conceptual research article focusses on previous two National policies on education, the background and emergence of NEP 2020, vision, salient features, technological use, it's alignment with promoting STEM (Science Technology Engineering and Mathematics) Education, Systematic Implementation and Challenges.

Key words: NEP 2020, STEM Education, Technology. Implementation, Challenges.

Introduction

Quality education is critical for realizing one's full potential, creating a more equitable and just society, and advancing national progress. The world's knowledge and job landscapes are rapidly changing right now. In this situation, an educational system must foster character development by teaching students to be ethical, reasonable, compassionate, and caring while also preparing them for profitable employment. It is important to recognize that the gap between present learning outcomes and what is required can be closed through educational reforms. From Early Childhood Care and Education (ECCE) to Higher Education, the reforms are required to bring quality, equity, and integrity to the system. As a result, India needed an education system that provided equal access to high-quality education to all students, regardless of their social or economic status. In this backdrop, India has accepted the 2030 Agenda for Sustainable Development Goal (SDG4), which aims to ensure that all children receive a high-quality education and that all people have access to lifelong learning opportunities. The new strategy envisions an education

system centered on India that directly contributes to nation's long-term transformation into an equitable and thriving knowledge society by offering high-quality education to all.

Under these circumstances the New Education Policy 2020 has been announced after 34 years. This Policy suggests that all components of the education system, including legislation and governance, be revised and revamped in order to develop a new system that is linked with the aspirational goals of 21st century education while preserving India's traditions and value systems. The development of each individual's creative potential, as well as higher order cognitive capacities like critical thinking, problem solving, as well as social, ethical, and emotional capacities and dispositions being emphasized in NEP 2020. Most notably, this Policy was shaped by the rich tradition of ancient and everlasting Indian knowledge and thoughts.

On July 29, 2020, India's Union Cabinet approved the National Education Policy 2020 (NEP 2020), which establishes the goals for the country's future education system. The new policy has replaced the 1986 National Policy on Education. The programme provides a comprehensive framework for basic through higher education, as well as vocational training, in both rural and urban India. The initiative aims to entirely transform India's educational sector by 2021.

The foundational pillars of this policy are *access, equity, quality, affordability and accountability*.

The vision of NEP 2020 is to instill among the learners a deep-rooted pride in being Indian, not only in thought, but also in spirit, intellect, and deeds, as well as to develop knowledge, skills, values, and dispositions that support responsible commitment to human rights, sustainable development and living, and global well-being, thereby reflecting a truly global citizen there by transforming India into a global knowledge power.

This National Education Policy envisions an education system rooted in Indian ethos that contributes directly to transforming India, that is Bharat, sustainably into an equitable and vibrant knowledge society, by providing high-quality education to all, and thereby making India a global knowledge superpower.

Areas of Concern:

NEP 2020 is required to overcome the devastating difficulties that have plagued India's education system for decades such as

i) **Poor literacy and numeracy outcomes in primary school**, 50 percent of students lack fundamental numeracy, or the capacity to understand and operate with numbers, according to several reports. NEP 2020 considers foundational learning to be a key area, with the goal of fostering multiple skills and capacities among pupils.

ii) **High dropout rates and curricular inconsistencies in Middle and Secondary Education:** As per the data from ministry of education during the last three years the dropout rates have increased. The GER for Grades 6-8 was 90.9%, while for Grades 9-10 79.3% is and 11-12 is 56.5%, - indicating that a significant proportion of enrolled students drop out after Grade 5 and especially after Grade 8. Dropouts can be caused by a variety of factors, including poverty, ill health, and a lack of proximity to school. Furthermore, dropout rates differ significantly by state, gender and socio-economic status. The Gross Enrolment Ratio (GER) is also declining, since data shows that a large proportion of registered pupils leave out after Grade 5, and notably after Grade 8, according to the data. As a result, reducing dropout rates and increasing GER, particularly in middle and secondary education, is also a governmental priority

iii) **A lack of multi-disciplinary approach and flexibility with regard to subject choice, evaluation, and a skill-gap:** Higher dropout rate and decline in Gross Enrolment Ratio (GER) suggests that a large number of students are opting out of higher education. Hence the programme focuses primarily on reducing dropout rates and raising GER in higher education institutions. Furthermore, childhood care, curriculum design, language/medium of instruction, teacher training, teacher appraisal, assessment pattern and evaluation, and test style are also overarching thrust areas for NEP 2020. To define educational standards, a new assessment centre named PARAKH (Performance, Assessment, Review, and Analysis of Knowledge of Holistic

Development) is proposed. Finally, this new strategy addresses concerns such as regulation, teacher recruiting, and the lack of clear standards and norms for colleges.

Earlier Education Policies

The first National Policy of Education (NPE) was issued by the Indian government in 1968 by Prime Minister Indira Gandhi, the second in 1986 by Prime Minister Rajiv Gandhi, and the third in 2020 by Prime Minister Narendra Modi. The Union Cabinet of India approved the National Education Policy 2020 (NEP 2020) on July 29, 2020, which defines the goal for India's new education system.

Comparison of Earlier Education Policies:

NPE 1968 Was announced by Prime minister Indira Gandhi based on the recommendations of Kothari Commission (1964–1966) called for "radical restructuring" and equal educational opportunities in order to promote national cohesion and better cultural and economic development. compulsory education for all children up to the age of 14, as well as specialized teacher training and qualification, “three language formula" for secondary education, which included teaching English, the official language of the state where the school was located, and Hindi. Language education was seen necessary to bridge the gap between the intellectuals and the general public. Also promoted the teaching of Sanskrit, an ancient Indian language that was considered an important component of the country's history and tradition. Education spending should be increased to 6% of national revenue, according to the NPE of 1968.

NPE of 1986 was announced by Rajiv Gandhi's government which emphasized "special attention on removing gaps and equalizing educational opportunity," particularly for Indian women, Scheduled Tribes (ST), and Scheduled Caste (SC) populations. The policy extended scholarships, adult education, recruiting more teachers from the SCs, offering incentives for poor families to bring their children to school on a regular basis, developing new institutions, and providing housing and services to achieve such social integration. The policy advocated “child-centered approach" in primary education and launched "Operation Blackboard," a statewide initiative to improve primary schools.

The policy expanded the Open University system by establishing Indira Gandhi National Open University in 1985, The policy also called for the Mahatma Gandhi philosophy to be used to foster economic and social development in rural India. The government planned to spend 6% of GDP on education.

The P. V. Narasimha Rao government changed the 1986 National Policy on Education in 1992. Former Prime Minister Manmohan Singh implemented a new strategy in 2005 based on his United Progressive Alliance (UPA) government's "Common Minimum Programme." Under the National Policy on Education (NPE) of 1986, the Programme of Action (PoA) of 1992 called for the conduct of a common entrance examination for admission to professional and technical programmes across the country. The Government of India has issued guidelines for admission to engineering and architecture/planning programmes. A Three-Exam Scheme (JEE and AIEEE at the national level, and State Level Engineering Entrance Examinations (SLEEE) for State Level Institutions – with an option to join AIEEE) was established by a resolution dated October 18, 2001 addressing the fact that entrance standards for different programmes vary, as well as the need to maintain professional standards eliminating the overlaps and alleviating the physical, mental, and financial stress that students and their parents face as a result of the numerous entry exams.

NPE 2020

In January 2015, a group of delegates led by former Cabinet Secretary T. S. R. Subramanian began consultations on the New Education Policy. Based on the committee report from June 2017, a panel chaired by former Indian Space Research Organization (ISRO) chief Krishnaswamy Kasturirangan presented a draft NEP in 2019. Following that, the Ministry of Human Resource Development released the Draft New Education Policy (DNEP) 2019, which was met with a series of public hearings. The first draft of the NEP was 484 pages long. According to the Ministry, "almost two lakh proposals were submitted from 2.5 lakh gram panchayats, 6,600 blocks, 6,000 Urban Local Bodies (ULBs), and 676 districts." "National Education Policy 2020 envisions an India-centric education system that contributes directly to developing our nation sustainably into an equitable and thriving knowledge society by offering high-quality education to everyone," according to the policy's vision.

NEP 2020 is divided in to 4 major areas. School Education, Higher Education, Other Key Areas of focus and Making it happen by establishing new bodies to regulate the structure of NEP 2020

NEP 2020 focusses on Quality, Equity, Affordability, Access and Accountability.

The Salient features are:

i) To bring two crores out of school children back into the mainstream.

ii) Revamping 10 + 2 school curricula pattern into 5 + 3 + 3 + 4 corresponding to the ages 3 – 8, 8 – 11, 11 – 14, 14 – 18 respectively which includes 12 years of schooling and 3 years of Anganwadi and pre schooling.

iii) Development of National Curriculum and Pedagogical Framework for Early Childhood Care and Education (NCPFECCE) by National Council of Educational Research and Training (NCERT)

iv) Establishing a National Mission on Foundational Literacy and Numeracy as part of NEP 2020. States to develop a strategy to achieve universal basic literacy and numeracy in all primary schools for all students by the third grade by 2025.

v) To develop A National Book Promotion Policy.

vi) All students in Grades 3, 5, and 8 will take school tests administered by the relevant authority. Board exams for Grades 10 and 12 will be kept, but with a new focus on holistic development.

vii) To establish, a new National Assessment Centre, PARAKH (Performance Assessment, Review, and Analysis of Knowledge for Holistic Development), As a standard-setting body

viii) The establishment of a Gender Inclusion Fund, as well as Special Education Zones for underprivileged regions and groups, is emphasized by the NEP. Every state/district will be encouraged to create "BAL Bhavans," a special daytime boarding school where students can participate in art, career, and play-related activities. Samajik Chetna Kendras can be created using free school infrastructure.

ix) The National Council for Teacher Education will produce a common National Professional Standards for Teachers (NPST) by 2022, in conjunction with NCERT, SCERTs, teachers, and expert groups from all levels and regions. Independent State School Standards Authorities(SSSA). will be established by the states/UTs Through talks with all stakeholders, the SCERT will design a School Quality Assessment and Accreditation Framework (SQAAF).

x) Increasing Enrolment Ratio in higher education, including vocational education, from 26.3 percent in 2018 to 50 percent by 2035, and to add 3.5 crore new seats to higher education institutions.

xi) The policy envisions broad-based, multidisciplinary, holistic Undergraduate education with flexible curricula, creative subject combinations, integration of vocational education, and multiple entry and exit points with appropriate certification.

xii) Formation of Academic Bank of Credit to digitally store academic credits earned at various higher education institutions so that they can be transferred and counted toward a final degree.

xiii) Establishment of Multidisciplinary Education and Research Universities (MERUs) as models of excellent interdisciplinary education Universities of global standards in the country, on par with IITs and IIMs.

xiv) HEIs will focus on research and innovation by setting up start-up incubation centers; technology development centers; in frontier areas of research; greater industry-academic linkages; and interdisciplinary research. Given the scenario of epidemics and pandemics, it is critical that HEIs take the lead to undertake research in areas of infectious diseases, epidemiology, virology, diagnostics and diagnostics.

xv) To establish National Research Foundation (NRF) as the apex organization for creating a strong research culture and increasing research capacity in higher education.

xvi) To establish The Higher Education Commission of India (HECI) as a single overarching umbrella authority for all higher education, excluding medical and legal education, with public and private higher education institutions subject to the same regulatory, accreditation, and academic requirements.

xvii) To phase out College affiliation over the next 15 years, and to formulate and implement a stage-by-stage procedure for providing colleges graded autonomy.

xviii) To collaborate NCTE with NCERT to develop a new and comprehensive National Curriculum Framework for Teacher Education, NCFTE 2021.

xix) By 2030, a 4-year integrated B.Ed. degree will be the minimum degree requirement for teaching. Substandard stand-alone Teacher Education Institutions will face severe consequences (TEIs).

xx) To develop A National Mentoring Mission, with a significant pool of outstanding senior/retired faculty eager to mentor/professionally support university/college teachers on a short and long-term basis.

xxi) To expand The National Scholarship Portal to track scholarship recipients' development. Private higher education institutions will be pushed to provide more free ships and scholarships to their students.

xxii) To guarantee remote learning on par with the top quality in-class programmes, measures such as online courses and digital repositories, research funding, improved student services, credit-based recognition of MOOCs, and so on.

xxiii) Following the recent surge in epidemics and pandemics, a thorough set of guidelines for promoting online education has been covered in order to assure preparation with alternate forms of quality education whenever and wherever traditional modes of education are not viable.

xxiv) To address the e-education demands of both school and higher education, the HRD ministry will construct a dedicated unit to orchestrate the building of digital infrastructure, digital content, and capacity building.

xxv) To establish The National Educational Technology Forum (NETF) as an autonomous body to provide a platform for the free exchange of ideas on the use of technology to enhance learning, assessment, planning, and administration.

xxvi) The NEP also recommends establishing an Indian Institute of Translation and Interpretation (IITI), a National Institute (or Institutes) for Pali, Persian, and Prakrit, strengthening Sanskrit and all language departments in HEIs, and using mother tongue/local language.

xxvii) Internationalization of education would be aided by institutional alliances, student and faculty mobility, and the establishment of campuses in India by top-ranked universities around the world.

xxviii) Separate technological universities, health science universities, legal and agricultural universities, and other institutions will strive to become multi-disciplinary.

xxix) The goal of the policy is to achieve 100 percent literacy among kids and adults. The Centre and the States will collaborate to boost public investment in education to reach 6% of GDP as soon as possible.

Use of Technology in enhancing Access, Equity and Quality:

India with 1.5 million schools, 8.5 million teachers and nearly 260 million school students has achieved the goal of **access** to educational facilities and retention of students in schools substantially. But achieving a comparable level of education in schools and expected learning results for all children is still a long way off. Apart from print resources and face-to-face interactions, technological advancements have been integrated in a broader sense to bridge the learning gaps and digital divide through the design, development, and delivery of e-Contents.

In this journey, the Digital India campaign has proven to be a steppingstone. The goal of the Digital India initiative is to transform India into a knowledge economy and a digitally empowered society. All policies, schemes, and programmes have been hastened as a result of this, and NCERT (National Council of Educational Research and Training), CBSE (Central Board of Secondary Education), NIOS (National Institute of Open Schooling), and a number of other national and state-level organizations and institutions have launched a number of ICT (Information and Communication Technology) initiatives. Some of the notable initiatives are DIKSHA (Digital Infrastructure for Knowledge Sharing), NROER (The National Repository of Open Educational Resources), Epathshala, DTH TV transmission through a bouquet of 34 educational TV channels under the SWAYAM PRABHA and EDUSAT network, running of Massive Open and Online Courses (MOOCs) through SWAYAM (Study Webs of Active

Learning for Young Aspiring Minds), dissemination of educational radio content through podcasts, i-radio, broadcasts on Gyan Vani and Community Radio, and so on .

The NEP-2020 places a strong emphasis on the role of technology, particularly disruptive technologies, in providing high-quality education to students, teachers, and youths while also addressing the triple challenge of **skill, scale, speed**. It is natural to conclude that implementing NEP-2020's vision of "Technology Use and Integration" in the educational system will aid India's transformation into a digitally empowered society and knowledge economy.
India is a world leader in information and communication technologies as well as other cutting-edge fields like space exploration. The Digital India Campaign is assisting in the transformation of India as a digitally enabled society with a knowledge economy. While education will be vital in this transition, technology will also be critical in improving educational procedures and outcomes; thus, the interaction between technology and education at all levels is bi-directional.

Given the rapid speed of technological advancement and the boundless ingenuity of tech-savvy instructors and entrepreneurs, especially student entrepreneurs, it is inevitable that technology will have an impact on education in a variety of ways, only some of which can be predicted at this time.

HEIs (Higher Education Institutions) will be involved not only in performing disruptive technology research, but also in developing early versions of instructional materials and courses, including online courses in cutting-edge domains, as well as assessing their influence on specialized sectors such as professional education. When the technology matures, HEIs with thousands of students will be in a great position to grow these teaching and skilling activities, which will include targeted job preparation training. Certain jobs will become obsolete as a result of disruptive technology, therefore efficient and quality ways to skilling and deskilling will become increasingly important in order to create and sustain employment. Institutions will have the authority to approve institutional and non-institutional partners for the delivery of such training, which will be integrated into skills and higher education frameworks.

Artificial intelligence, machine learning, block chains, smart boards, handheld computing devices, adaptive computer testing for student development, and other types of educational software and hardware will change not only what students learn in the classroom, but also how they learn. Hence there is a need for extensive research on both the technological and educational fronts. Appropriate agencies will be chosen, such as the NETF (National Educational Technology Forum), CIET (Central Institute of Educational Technology), NIOS, IGNOU (Indira Gandhi National Open University), IITs (Indian Institute of Technology), NITs (National Institute of Technology), and others, to perform a series of pilot studies in tandem to evaluate the benefits of integrating education with online education while reducing the drawbacks and to investigate related topics.

NEP 2020 also emphasizes extensive use of technology in teaching and learning, eradicating language obstacles, improving access to Divyang students, and streamlining educational planning and management. Several ICT initiatives, including as DIKSHA, NROER, SWAYAM, SWAYAM Prabha, and others, were launched based on earlier policies to increase access to educational materials for all citizens of the country.

This policy was developed at a time when Artificial Intelligence (AI) 3D/7D Virtual Reality has emerged as an undeniably disruptive technology. As the cost of AI-based prediction decreases, AI will be able to match or beat humans in certain predictive activities, making it a viable tool for even highly competent professions such as doctors. The potential for AI to disrupt the workplace is evident, and the educational system must be ready to respond rapidly. One of the NETF's permanent objectives will be to categorize emerging technologies based on their disruptive potential and timescale, and to submit this analysis to MHRD on a regular basis. MHRD will formally identify those technologies whose emergence necessitates reactions from the educational system based on these inputs.

The benefits of technology, however, will not be realized unless the digital divide is bridged through deliberate attempts such as teacher training and development to become effective online educators, development of open and public digital infrastructure in the education sector, and leveraging existing platforms to accommodate advanced technologies such as immersive technologies, virtual labs, and so on. To increase teacher quality, a focus on learner-

centered pedagogy and a blended approach to address the social, emotional, and psychomotor elements of learning is also emphasized.

The need for a specialized autonomous entity to conduct research, exchange ideas, and advise other organizations on how to make successful use of technology has been identified. As a result, a lot of exploration and conversation with experts on how to realize all of the presented ideas will open up the eyes to see the way forward.

As disruptive technologies become more widely available, schooling and continuing education will help to raise public understanding of their possible disruptive consequences while also addressing related challenges. This understanding is required in order to obtain informed public consent on issues concerning these technologies. Disruptive technologies, such as those identified by NETF/MHRD, will be discussed in school as part of the study of current events and ethical issues. For continuing education, appropriate instructional and discussion materials will be created.

STEM Education and Its Importance

While digitization has braided the world into a virtual thread of connectivity, transforming it into one global village, it is critical to equip our children with the skills and abilities they will need to thrive and survive in this new environment. This is where the much-discussed, well-supported, and well-designed STEM (Science, Technology, Engineering, and Mathematics) curriculum should be accepted and implemented to prepare our pupils for the new normal.

STEM education shall enable the child with better inquisitive mindsets, creative thinking, logical reasoning and develop them into leaders and better decision-makers in life. They are skilled professionals, in trades that are hands-on absorbed by the market.

STEM (Science, Technology, Engineering, and Mathematics) education is a contemporary approach to learning and development that integrates four essential concepts - Science, Technology, Engineering, and Mathematics – in an interdisciplinary and applied way. People and investors all over the world are interested in the concept since it focuses on teaching these courses together rather than individually. The learning is centered on the development of skills. STEM education is thought to promote creativity, problem-solving, teamwork, critical reasoning, communication, independent thinking, and digital literacy, all of which are key 21st-century skills. A strong STEM education is thought to produce critical thinkers, problem solvers, and next-generation innovators. In a risk-free setting, students are free to put what they've learnt into practice and welcome failures. Project-based learning and problem-solving assist students in developing a unique world view. Its foundation is built on curiosity and adaptability, which prepares students to respond to real-world issues

According to the prediction of National Science Foundation 80% of the jobs created in the next decade will require STEM skills. An effective STEM education is going to be the Game Changer at the critical time when the Indian Government is promoting Initiatives such as Make in India, Skill India and Digital India. Hence STEM education is need of the hour. To succeed in this new information-based and highly technological society, students need to develop their capabilities in STEM to levels much beyond what was considered acceptable in the past."

How is STEM Education supported by NEP 2020?

NEP talks about reduction in curriculum content enhance essential learning, critical thinking, experiential learning at all stages, flexibility of course choices for students. It also talks about curricular integration Essential Subjects, Skills, and Capacities.

While students must have a great deal of freedom in choosing their own courses, some subjects, skills, and capacities should be learned by all students in order for them to become good, successful, innovative, adaptive, and productive people in today's fast changing world. Furthermore, these skills include: scientific temper and evidence-based thinking; creativity and innovation; aesthetics and art; oral and written communication; health and nutrition; physical education, fitness, wellness, and sports; collaboration and teamwork; problem solving and logical reasoning;

vocational exposure and skills; digital literacy, coding, and computational thinking; ethical and moral reasoning; knowledge and practice of human arithmetic; knowledge and practice of human arithmetic current affairs and knowledge of crucial issues confronting local communities, States, the country, and the world; and knowledge of India

With changing technology and educational trends, introducing coding and technology concepts at the school level will undoubtedly encourage children to be more innovative and creative. Furthermore, children will have new opportunity to define their own goals and achieve new levels of success on par with the rest of the globe. The greatest way to teach children to adapt to the future is to include innovative technology in the curriculum.

The new National Education Policy 2020 (NEP 2020) aims to positively reform the educational system of India which was long overdue. Now that it's finally here, let's look at some of the new changes or highlights of the NEP 2020:

i. The new structure aims at encouraging experiential learning. The focus would be on critical learning objectives and not on rote learning.

ii. Curriculum content will be reduced in each subject to its core essentials – key concepts, ideas, applications and problem-solving. Emphasis on critical thinking and more holistic, inquiry-based, discovery-based, discussion-based, and analysis-based learning. In all stages, experiential learning will be adopted, including hands-on learning.

iii. The new education policy lays particular emphasis on the development of the creative potential of each child. It aims at producing engaged, productive, and contributing citizens for building an equitable, inclusive, and plural society.

iv. The NEP 2020 introduces subjects such as Artificial Intelligence (AI) and Design Thinking.

v. An emphasis on mathematics and computational thinking for AI, machine learning (ML), and data science, which will start in the foundational stage (starting with age 6). These are executed through innovative methods, which include regular use of puzzles and games that make mathematical thinking more enjoyable and engaging.

vi. Activities involving coding will be introduced in the Middle Stage (starting with age of 11). This will encourage children to be more innovative and creative.

vii. Concerted curricular and pedagogical initiatives, including the introduction of contemporary subjects such as Artificial Intelligence, Design Thinking, Holistic Health, Organic Living, Environmental Education, Global Citizenship Education (GCED), etc. at relevant stages will be undertaken to develop these various important skills in students at all levels.

viii. NEP gives importance to multi-disciplinary approach to studying and conceptual understanding, fostering skills such as creativity and critical thinking and learning by doing.

All the above are heart of STEM education. Children in their formative years have a strong desire to learn about and use new technology. NEP aspires to enlighten each individual's thinking in their chosen field. At every level, resources, direction, mentorship, determination, and chances can be supplied to enable people to find new answers to modern-day issues.

The National Education Policy (NEP) 2020 recommends that modern disciplines such as Artificial Intelligence be introduced into the curriculum at appropriate levels. In accordance with the NEP, 2020, the National Council of Educational Research and Training (NCERT) has begun the process of developing a new National Curriculum Framework for School Education, during which the possibility of introducing an introductory course on Artificial Intelligence (AI) at the secondary level will also be investigated. Meanwhile, in its affiliated institutions, the Central Board of Secondary Education (CBSE) has introduced Artificial Intelligence as a topic in class IX from the 2019-2020 school year and class XI from the 2020-2021 school year.

The policy states that Artificial Intelligence and other technologies will completely change the way students learn in the classrooms. However, this requires a lot of research both on technological as well as educational grounds.

The government's past initiatives, like as the NITI Ayog's Atal Tinkering Labs project to integrate STEM education into the education system, have set the way for NEP. With NEP, educators and teachers can expand their skill set and acquire new facets of teaching. Teachers are armed with new technology tools and ways for presenting their skills to students and teachers through experiments, practical, experiences presented visually and graphically, role plays, debates, and conversations. This policy change will result in a paradigm shift in how education is viewed, taught, and accepted throughout the country.

Implementation of NEP.

Any policy's effectiveness depends on its implementation which requires multiple initiatives and actions, which will have to be taken by multiple bodies in a synchronized and systematic manner in coordination with various bodies of Central and State governments.

The first and most important task will be to carry out the Policy's spirit and objective. This will involve early investment in some of the specific measures (such as the establishment of early childhood care and education infrastructure) that are critical to creating a firm foundation and a smooth transition for all subsequent programmes and actions. Careful planning, joint monitoring, and collaborative implementation between the Center and the States will be required.

A well-defined implementation plan with the following steps in mind is required for an efficient implementation of NEP-2020:

Extensive research needs to be conducted on disruptive technology and the existing state of ICT deployment in schools and teacher education institutes, as well as the development of eContents, strategies, and training modules on content-ICT-pedagogy integration, as recommended in NEP 2020.

Continual adaptation of the architecture of national digital education platforms, including portals, apps, and laboratories, in response to changing educational demands.

Design, development, and implementation of MOOCs for students and teachers, including policy evaluation, certification, and credit transfer.

Dissemination of digital content in a variety of ways

Collaboration and coordination with national and state-level entities to ensure that efforts are directed in the same direction.

As per the policy document it is expected that in the decade of 2030-40, the entire policy will be in an operational mode, following which another comprehensive review will be undertaken.

Conclusion:

NEP 2020 is definitely a landmark policy after 34 years which is comprehensive, holistic and has the potential to play a key role in the nation's future growth and development. The policy emphasizes a holistic, learner-centered, and adaptable approach that aims to transform nations into vibrant information societies. It brilliantly mixes pride and rootedness within the country with acceptance of the best successful ideas and methods from around the world in the realm of learning. It is definitely a revolutionary document that is expected to change the way of learning of coming generation of students.

The educational policy of 2020 has much scope for the multidisciplinary approach with digital learning, autonomy to courses and curriculum and the advancement of technology, business and education globally, paving way for holistic development of the student. Prominence is given to music, art, instruments, vocational courses, which are not emphasized in the NEP 1986. Hence, there is much scope for the multidisciplinary approach with student-centric learning.

Thus, the cornerstones of quality learning are curriculum, pedagogy, constant assessment, and student support. A number of initiatives will be required, in addition to providing adequate resources and infrastructure, such as high-quality libraries, classrooms, labs, technology, sports/recreation areas, student discussion spaces, and dining areas, to ensure that learning environments are engaging and supportive, allowing all students to succeed.

Some of the criticisms for the new education policy are " it is extremely theoretical" and in reality, may be different . No doubt, implementation of NEP is going to be time consuming, and challenging and the point of concern is there are numerous government schools where children do not have required number of teachers, good infrastructure some even lack the proper sanitation facilities.

According to data presented in the Lok Sabha, over 25,000 villages in India are still without internet access, and a separate 2018 survey of 360,000 villages by the government rural development ministry indicated that over 14,700 villages in India have insufficient or no energy. According to the report Key Indicators of Household Social Consumption on Education in India, based on the 2017-18 National Sample Survey, less than 15% of rural Indian households have Internet access (compared to 42% of urban Indian households). Switching to digital forms of education in a country like India, which is characterized by a wide range of diversity and restrictions in terms of available resources (ICT infrastructure, electricity, budget, and educated human resource), is a massive endeavour that is fraught with difficulties.

Education being in the concurrent list, this policy needs co-operation from the states and Union territories for acceptable execution. So far, the states Karnataka and Madya Pradesh have adopted NEP 2020**.**

Several State/Union Territory level agencies must collaborate to accomplish a shift that will last beyond COVID-19. In the coming years, such partnership will assist to improve the quality of education and skill development for the big student population, and we will reap the demographic dividend. Integration and convergence of policies, schemes, programmes, and services must occur through the merger of parallel structures using a multimodal approach and creative approaches in order to accomplish content-ICT-pedagogy integration and application of disruptive technology in the real world. India's potential will inevitably stay in the country, thanks to the government's new support structures and a focus on practical learning rather than rote memorization, and students would want to study at home rather than travel abroad for "further education." The key to the success of ambitious NEP 2020 for transforming India as a Knowledge hub lies with the proper implementation and execution of the same.

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