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The Role of Technology in NEP 2020

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Abstract: *The National Education Policy (NEP) 2020 places a strong emphasis on integrating technology into India's education system to improve accessibility, equity, and quality. Key aspects include the development of digital infrastructure to bridge educational gaps, particularly in rural and underserved areas. The policy promotes online learning platforms like SWAYAM and DIKSHA, and focuses on teacher training to ensure educators can effectively incorporate digital tools into their teaching. Virtual labs and simulations are introduced as vital tools, especially in STEM fields, allowing students to conduct experiments and engage in hands-on learning remotely. These platforms also support multidisciplinary education, encourage critical thinking, and reduce costs associated with physical infrastructure.*

In addition, educational apps and digital resources are central to enhancing learning. The policy encourages the creation of open educational resources (OER) and the integration of digital tools into the curriculum to support personalized learning. Apps are also designed to assist in teacher training, including the use of local languages to improve accessibility and inclusivity.

The use of AI and data analytics is a key focus of NEP 2020. These technologies are expected to improve assessment techniques, enhance personalized learning, and support data-driven decision-making in educational planning and administration. Assessment methods shift from traditional exams to continuous and formative evaluations, enabled by digital tools. This allows for real-time feedback, adaptive assessments, and gamification, making learning more interactive and personalized.

Ultimately, NEP 2020 aims to create a more inclusive, tech-driven educational system by integrating digital infrastructure, teacher training, and advanced technologies to enhance learning outcomes, access, and skills development across the country..

Keywords: Digital Infrastructure, National Education Policy (NEP) 2020,Technology in Education, Rural Education, Inclusive Education, Virtual Learning Platforms, DIKSHA, NROER, Teacher Training, Digital Tools for Teaching

I. INTRODUCTION

Effectively has the Role of Technology in NEP 2020 : In NEP 2020, technology plays a key role in improving access, equity, and quality in education. Through systems like SWAYAM and DIKSHA, it efficiently facilitates online education, teacher training, and individualized learning. Real-time assessments, data-driven decision-making, and inclusive education for students in faraway locations are all made possible by technology. By combining artificial intelligence (AI), virtual classrooms, and digital technologies, the strategy encourages innovation with the goal of upgrading teaching strategies and raising educational standards nationwide.

Significance changes in technology in NEP2020: The 2020 National Education Policy (NEP) places a strong emphasis on important adjustments to the way technology is incorporated into education. It promotes the use of data analysis for well-informed decision-making, online platforms for accessible education, and digital tools for personalized instruction. In order to improve learning outcomes and create a more inventive, inclusive educational system, the strategy seeks to advance digital literacy at all levels. It also emphasizes how to enhance teaching and learning through the use of AI, e-learning, and virtual classrooms.

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Key factors of success and failure of technology in NEP2020: Key elements include digital infrastructure, accessibility, teacher preparation, and equitable access to technology are vital for the success of technology in NEP 2020. Strong internet access, continual professional development for teachers, and reasonably priced gadgets for every student are necessary for successful adoption. However, problems including the digital divide, inadequate training, a lack of resources, and resistance to changing conventional teaching methods can all lead to failure. Success also depends on making sure that technology enhances current educational systems.

The role of private changed in technology in NEP2020: With a focus on working with the government to improve digital infrastructure and learning platforms, the private sector's role in technology has changed dramatically in NEP 2020. Private businesses are urged to help by creating modern digital content, instructional technologies, and e-learning resources that complement national educational objectives. In order to overcome access gaps and guarantee fair digital education, the strategy encourages public-private collaborations. Private organizations are also viewed as important providers to teacher training and the nationwide expansion of technological solutions.

II. LITERATURE REVIEW

Scope of Digital Infrastructure: Improving digital infrastructure is a key component of India's National Education Policy (NEP) 2020, which aims to establish an accessible, inclusive, and egalitarian educational system. In order to close educational gaps, particularly in rural and isolated places, digital infrastructure is essential. NEP 2020 promotes the use of technology in education to enhance management, instruction, assessment, and learning.

NEP 2020 highlights how crucial it is to include technology into teaching and the curriculum. In order to ensure that all students and teachers have access to digital tools, resources, and platforms for learning and teaching, it envisions a technologically driven revolution.

Ensuring fair access to educational resources across various geographic locations is a crucial component of digital infrastructure. The goal of the policy is to use technology to give kids in underprivileged and rural areas access to high-quality education.

To support learning through digital channels, NEP 2020 suggests creating online learning platforms and virtual learning environments like DIKSHA and the National Repository of Educational Resources (NROER).

The policy places a strong emphasis on educating teachers on how to use digital tools and platforms efficiently. For teachers to be prepared to incorporate technology into the classroom, it requires ongoing professional development programs.

NEP 2020 promotes the development and distribution of digital content, e-books, and open educational resources (OER) that are accessible to all students in order to support self-study and individualized education.

The NEP suggests utilizing technology to improve evaluation techniques. This includes AI-powered evaluation tools, online tests, and feedback systems that can offer up-to-date information on student performance.

The goal of the strategy is to ensure that pupils are adept in using digital tools from an early age by integrating digital literacy into the curriculum at school and making it a fundamental skill.

By integrating digital literacy into educational programs, the strategy seeks to establish it as a fundamental ability and guarantee that children are adept at using digital technologies from an early age.

The policy aims to improve educational outcomes through the use of AI, machine learning, and big data. This would involve data-driven decision-making for educational planning, predictive analytics for student needs, and customized learning experiences.

Organizational and governance tasks will also be supported by the digital infrastructure. The goal of the strategy is to increase the efficiency and transparency of educational institutions by establishing online portals for administrative tasks, data collection, and decision-making.

NEP 2020 highlights how crucial it is to protect kids' and teachers' online privacy and security. Implementing effective cybersecurity measures is a top priority in order to safeguard data and sustain a secure learning environment.

Significance of Virtual Labs and Simulation:-The need to integrate technology into teaching is emphasized in the National teaching Policy (NEP) 2020. The use of virtual labs and simulations as instruments to improve teaching and learning, particularly in the domains of science, technology, engineering, and mathematics (STEM), is one of the most

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important components of this shift. Students may conduct experiments, investigate difficult ideas, and resolve issues without being constrained by time, place, or physical resources thanks to virtual labs and models.

Students can get a hands-on experience with experiments and concepts in virtual labs and simulations that might not be feasible in a typical classroom setting because of infrastructure or resource limitations. Virtual laboratories aid in achieving the goal of experiential learning, which is emphasized in NEP 2020.

All pupils, including those in poor or rural areas, should have access to education by the end of NEP 2020. Geographical limitations that can restrict access to physical laboratories and resources are overcome by virtual labs, which offer equivalent chances for hands-on learning.

Students can repeat experiments, examine multiple results, and test different hypotheses in virtual labs, which can provide a tailored learning experience. This can assist the policy's emphasis on learner-centric education by allowing a range of learning styles and speeds.

The expenses of supplies, infrastructure, and maintenance are greatly decreased by virtual labs. Cost-effective strategies are encouraged by NEP 2020, and virtual laboratories support this objective while providing a comparable or better educational experience.

In a virtual setting, simulations let students work on real-world issues, plan experiments, and investigate solutions. This fosters inventive thinking, creativity, and problem-solving abilities—skills that NEP 2020 emphasizes are essential for students in the twenty-first century.

Students can integrate information from a variety of subjects, including physics, chemistry, biology, and engineering, through the use of virtual labs and simulations. NEP 2020's goal of multidisciplinary education that equips students for a variety of future occupations is in line with this strategy.

Students' analytical, technical, and critical thinking skills are enhanced by virtual labs. One important component of NEP 2020's goal to improve employability and industry-academia collaboration is the acquisition of industry-relevant skills by students through simulations in fields like robotics, artificial intelligence, and data science.

Virtual labs support economy by lowering the demand for tangible materials and experiments. By reducing the environmental impact of conventional science laboratories, virtual labs support NEP 2020's need for ecologically responsible teaching methods.

According to NEP 2020, technology will be a fundamental component of education. Cloud computing, AI, and machine learning-powered virtual labs and simulations support the policy's objectives of integrating technology into the educational process in a smooth manner.

Students can participate in international projects, attend online workshops, and investigate global scientific concerns thanks to virtual labs, which facilitate collaboration with peers and institutions around the world. This aligns with NEP 2020's emphasis on strengthening international educational cooperation and promoting global citizenship.

Need of Teacher Training in NEP2020: Since teacher preparation has a direct impact on educational quality, instructional strategies, and overall student results, it is one of the foundations of the National Education Policy (NEP) 2020. NEP 2020 highlights the importance of thorough and ongoing teacher professional development, acknowledging that teachers are the main forces influencing the direction of education. The policy suggests a number of steps to guarantee that educators possess the most up-to-date pedagogical techniques, technical expertise, and awareness of the different needs of their students.

NEP 2020 highlights the need for teachers to receive ongoing training in contemporary teaching techniques, such as competency-based education, experiential learning, and constructivist approaches. This is necessary to create an atmosphere in which students can grow in their ability to think seriously, be creative, and solve problems.

Technology integration in education is one of NEP 2020's main objectives. Teachers need to be adept at using virtual learning environments, digital tools, and other educational technology. Teachers who receive ongoing training are better able to adjust to changes in teaching and learning methods and feel at ease using digital resources.

The necessity of an inclusive educational system is emphasized in NEP 2020. Teachers must be prepared to meet the needs of a wide range of students, including children who speak different languages, kids from disadvantaged backgrounds, and students with impairments.

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NEP 2020 emphasizes that teacher development should be an ongoing process that lasts the entirety of a teacher's career rather than a one-time occurrence. Teachers will be able to stay current with the newest innovations, research, and pedagogical trends through regular professional development programs.

Promoting research-based strategies and evidence-based teaching practices ought to be the main goal of teacher preparation programs. NEP 2020 seeks to raise the standard of education by giving educators the means to examine and evaluate their own techniques.

The NEP suggests that educators acquire leadership abilities, especially in overseeing classrooms and learning settings. In order to enhance school governance, participate in instructional planning, and assume administrative responsibilities, teachers should also receive training.

The significance of social and emotional learning (SEL) for pupils is acknowledged by NEP 2020. The ability to assist students' emotional and psychological health is essential for teachers to ensure a comprehensive development process that extends beyond the classroom.

Good teacher preparation programs can give teachers the resources they need to ensure the quality of education. Training guarantees that instructors are able to fulfill their duties, which are emphasized in NEP 2020 as being essential to the monitoring and assessment of educational outcomes.

Teachers must receive training to manage multidisciplinary teaching and learning, as NEP 2020 promotes a multidisciplinary approach to education. Training curricula must promote the adaptability and flexibility needed to combine information from other domains and teach a variety of subjects.

In order to help teachers grasp that teaching is a rapidly changing profession, teacher training programs should promote a growth mindset in their students. Throughout their careers, instructors will be open to learning, growing, and adjusting thanks to this method.

Changes in Educational Apps and Resources: The transformative potential of educational apps and resources in improving learning experiences, especially through digital tools and technology, is acknowledged by the National Education Policy (NEP) 2020. NEP 2020 promotes the use of technology in the classroom and outlines a thorough strategy for utilizing educational tools and apps to raise educational quality, equity, and accessibility.

NEP 2020 places a strong emphasis on digital literacy and seeks to equip students with the knowledge and abilities needed to use educational apps and digital resources efficiently. In order to make educational applications a fundamental component of the curriculum, the policy encourages the integration of digital tools from the foundational stage.

The policy promotes the development of open educational resources, such as e-learning materials, digital textbooks, and educational applications, which are freely accessible to educators and students nationwide. The goal of these tools is to increase access to high-quality education.

In order to better adapt education to the various needs of students, NEP 2020 promotes the use of adaptable learning technology. Personalized learning-focused educational applications will be crucial, allowing students to study at their own speed with content that changes according to their

Online learning systems like SWAYAM, DIKSHA, and others are expected to become more widely available and used in the future, according to NEP 2020. Both urban and rural students can now access learning thanks to these platforms' extensive app selection of instructional content.

NEP 2020 will prioritize immersive and interactive learning experiences in educational apps. These methods, which will promote more involvement and a deeper comprehension of courses, particularly in STEM professions, include gamification, virtual labs, realism, and simulations.

According to the policy, educational apps and resources should be incorporated into national digital platforms including the National Library of Open Educational Resources, SWAYAM, and DIKSHA. Teachers and students will have easier access to more centralized digital materials and instructional apps thanks to these platforms.

Apps for Teacher Training and Development: One of NEP 2020's main priorities is teacher training, and educational apps will be employed to give educators ongoing opportunities for professional growth. Training programs are already provided by platforms such as DIKSHA and SWAYAM, and their function will extend to encompass new digital tools that aid in the professional development of teachers.

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Inclusion of Local Languages in Apps: By promoting the creation of educational applications that support many languages, particularly local and regional languages, NEP 2020 seeks to promote multilingualism and improve accessibility to education. Education will become more inclusive as a result, even for pupils from different language origins.

The policy highlights the need of lifelong learning and skill-based education. A major component of the educational environment will be apps that provide real-world information and vocational skills (such coding, artificial intelligence, and soft skills). This is in line with NEP's mission to increase employment via education.

NEP 2020 promotes the use of apps for assessment and feedback in order to enhance assessment techniques. Real-time assessment, customized counsel, and progress tracking will be facilitated by educational applications. Quizzes, interactive assignments, and digital portfolios will replace traditional exams as more dynamic forms of evaluation.

Impact of Artificial Intelligence and Data Analytics: According to NEP 2020, artificial intelligence (AI) and data analytics have a significant and revolutionary impact on education. Across all educational levels, NEP 2020 promotes the use of AI and data analytics to enhance educational results, tailor learning experiences, improve teaching strategies, and support well-informed decision-making. In addition to changing classroom experiences, artificial intelligence (AI) and data-driven technologies are anticipated to support educational research, policymaking, and administrative procedures.

NEP 2020 places a strong emphasis on the value of digital literacy and seeks to give students the know-how to use educational apps and online materials efficiently. In order to make educational applications a fundamental component of the curriculum, the policy encourages the integration of digital tools from the foundational stage.

The policy promotes the development of OER, which include freely accessible digital textbooks, e-learning materials, and educational applications that are accessible to educators and students nationwide. The goal of these tools is to increase access to high-quality education.NEP 2020 promotes adaptive learning tools that assist in customizing instruction to fit each student's unique needs. Personalized learning-focused educational applications will be crucial.

Online learning systems like SWAYAM, DIKSHA, and others are expected to become more widely available and used in the future, according to NEP 2020. Both urban and rural students can now access learning thanks to these platforms' extensive app selection of instructional content.

NEP 2020 will prioritize immersive and interactive learning experiences in educational apps. These will promote more involvement and a deeper comprehension of courses, particularly in STEM professions, and include gamification, virtual labs, augmented reality (AR), and simulations.

According to the policy, educational apps and resources would be incorporated into national digital platforms including the National Repository of Open Educational Resources (NROER), SWAYAM, and DIKSHA. These platforms will house digital resources and instructional applications for educators and students.

NEP 2020 places a strong emphasis on teacher training, and educational applications will be employed to give educators ongoing opportunities for professional growth. Training programs are already provided by platforms such as DIKSHA and SWAYAM, and their function will extend to encompass new digital tools that aid in the professional development of teachers.

By promoting the creation of educational applications that support various languages, particularly local and regional languages, NEP 2020 seeks to promote multilingualism and improve accessibility to education. Education will become more inclusive as a result, even for pupils from different language origins.

The necessity of lifelong learning and skill-based education is emphasized in the policy. Apps that provide real-world information and career skills (such coding, artificial intelligence, and soft skills) will become increasingly important in the educational environment. This is consistent with NEP's goal of enhancing employability via education.

NEP 2020 promotes the use of technology to enhance evaluation techniques. With the shift from traditional exams to more dynamic forms of evaluation like quizzes, interactive assignments, and digital portfolios, educational applications will aid in real-time assessment, individualized feedback, and progress tracking.

Uses of technology for assessment in NEP 2020: The National Education Policy (NEP) 2020 places a lot of emphasis on technology in assessment in an effort to modernize, integrate, and student-centeredly approach assessment

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techniques. Continuous assessment, real-time feedback, tailored learning, and more effective evaluation techniques are all made possible by technology, which increases the flexibility, openness, and effectiveness of the educational system.

The transition from summative (such as traditional exams) to continuous and formative evaluation is emphasized by NEP 2020. This change is made possible by technology, which makes it possible to regularly evaluate student performance through tests, assignments, and activity participation, guaranteeing that learning progress is continuously recorded throughout time.

Real-time student assessments are made possible by technological platforms such as Learning Management Systems (LMS). This contributes to the development of a more flexible learning environment where students receive ongoing assistance.

A more individualized learning and assessment experience is possible with the use of AI-based technologies to develop tests that adjust to the learner's level and pace. Assessments can dynamically adapt to students' learning demands as they go, providing increasingly difficult material when necessary.

Online examinations have become more common as a result of the move to digital platforms. Digital tests that are simple to give and can reach a larger student population—especially those in distant areas—are supported by platforms like SWAYAM and DIKSHA.

AI is used by automated grading systems to assess objective-style responses, such as multiple-choice and fill-in-the-blank questions. This lessens the strain for teachers and speeds up and improves grading, giving them more time for individualized instruction.

To make studying more interesting, NEP 2020 promotes gamification in the classroom. A variety of abilities, such as creativity, critical thinking, and problem-solving, can be measured in an entertaining and student-friendly way via interactive, game-based tests.

NEP 2020 emphasizes how critical it is to evaluate knowledge, abilities, and attitudes. Peer reviews, self-evaluations, instructor evaluations, and project-based assessments are examples of 360-degree assessments made possible by technology. Portfolio-based evaluation tools can monitor a student's progress in a number of areas.

Technology makes it possible to quickly gather and analyze data in order to provide students with individualized feedback. In line with NEP 2020's emphasis on feedback-driven learning, tools that collect data on performance trends might identify areas in which students might want more assistance.

Peer evaluations and collaborative learning are prioritized in NEP 2020. Students can work together on projects, evaluate each other's work, and provide feedback via digital platforms. These exercises foster the development of vital abilities like cooperation, communication, and critical thinking.

Instead than relying solely on rote memory, NEP 2020 promotes competency-based education, in which tests are focused on a student's capacity to exhibit particular competencies. Project-based evaluations, simulations, and digital technologies offer more precise measurements of these skills.

Research Method:-

Critical Review of:

South Africa:

In order to close the digital divide and get students ready for the workforce of the future, South Africa's National Education Policy (NEP) 2020 places a strong emphasis on integrating technology into the educational system. However, there are a number of obstacles to its execution. First, inequalities in infrastructure continue to be a major problem, especially in rural and impoverished areas where access to the internet and digital tools is restricted (Mhlongo, 2021). Although integrating technology into urban classrooms may be advantageous, the digital divide worsens educational inequality by depriving many students of the resources they need for digital learning. The second big issue is teacher preparation. Even though the policy emphasizes giving teachers digital skills, Govender (2020)observes that instructors do not receive enough ongoing, organized professional development. The potential effectiveness of the legislation is undermined by the perception among many instructors that they are not adequately equipped to use technology in the classroom. Additionally, NEP 2020 encourages STEM courses to be included; however, Maharaj (2021) points out that the curriculum frequently lags behind the rapid improvements in technology, resulting in a

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mismatch between the skills students learn and the changing needs of the workforce. The policy's unclear implementation and oversight procedures are another serious problem. Without strong accountability frameworks, the policy runs the risk of being executed unevenly across regions, producing unequal results, as Smith & Botes (2021) contend. Finally, inequality is still being exacerbated by the digital gap, particularly in the wake of the COVID-19 pandemic.This compelled the transition to online education (Naidoo, 2020). The government must give priority to filling these infrastructure deficiencies, give instructors ongoing training, and develop adaptable, modern curricula that meet industrial demands if NEP 2020 is to be successful. In the absence of these initiatives, the policy runs the risk of widening rather than reducing already-existing gaps.

South Korea:

In order to promote a digital-first approach to learning and adjust to the global technological landscape, South Korea's National Education Policy (NEP) 2020 lays a strong emphasis on integrating technology into the educational system. Even though South Korea is known for having a highly developed technological infrastructure, there are still obstacles in the way of universally accessible, fair access to digital education. The COVID-19 pandemic's quick transition to online education exposed access gaps for some populations, especially in rural places where digital gadgets and dependable internet are less accessible (Kim, 2021). Furthermore, Lee (2020) raises questions about how equipped educators are to employ educational technology. The rate of technology improvements frequently surpasses the training offered, notwithstanding South Korea's investments in teacher training programs.

The curriculum's flexibility to adjust to new technology is another important concern. Although Choi (2021) contends that the curriculum frequently stays inflexible and slow to adapt to new technological trends, the NEP 2020 calls for a curriculum redesign that prioritizes digital literacy, potentially leaving students unprepared for a quickly evolving digital economy. Additionally, the policy fails to sufficiently address how students' use of technology affects their mental and emotional health. According to Park (2020), an over dependence on digital tools in the classroom can result in problems like screen fatigue and a decline in social connection, both of which are harmful to a child's overall development.

Lastly, even though the South Korean government has invested much in instructional technology, local implementations can vary. According to Jung (2021), there are regional differences in the adoption of technology since there are no clear criteria for schools to follow, even in the face of national-level initiatives. A more sophisticated, regional strategy that addresses infrastructure, teacher preparation, and mental health is required for the NEP 2020 to be successful.

Japan:

In order to educate students for a future in which digital literacy will be crucial, Japan's National Education Policy (NEP) 2020 emphasizes the significance of incorporating technology into education. The already highly developed technology infrastructure in Japan offers a strong basis for this aim. Nonetheless, there are still issues with the equitable and broad adoption of technology in classrooms. According to Tanaka (2021), educational disparities are sustained in Japan because rural schools frequently encounter limited access to gadgets and dependable internet, while urban schools typically enjoy the advantages of cutting-edge technology. Furthermore, Kato (2020) contends that although Japan has a strong policy on integrating ICT (information and communication technology) into the classroom, the policies' execution has been inconsistent, with differences in how schools embrace and employ digital resources.

The sufficiency of teacher preparation is a major issue. Although Japan provides teacher professional development programs, Yamamoto (2020) notes that these programs typically emphasize fundamental technical abilities over using technology into classroom. This lack of training may restrict how well technology can improve the educational experiences of students. Additionally, Sato (2021) criticizes NEP 2020 for emphasizing digital tools without discussing the social and psychological effects of technology use. Over-reliance on digital platforms can lead to problems like social isolation, screen weariness, and the decline of in-person communication skills—all of which are essential for students' overall development.

Furthermore, the requirement for ongoing curriculum revisions to keep up with the quick advances in technology is not adequately covered by NEP 2020. A curriculum that swiftly adjusts to new digital trends is essential for students to remain competitive in a changing labor market, as suggested by Ito (2020). Japan must concentrate on guaranteeing fair

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access to technology, improving teacher preparation, addressing the negative effects of digital education on mental health, and developing a flexible, changing curriculum in order to realize the full potential of the policy.

China:

Having a particular emphasis on enhancing digital literacy and increasing access to online education, China's National Education Policy (NEP) 2020 highlights the significance of incorporating technology into the educational system. Although China's strong technological infrastructure is a big help in achieving these objectives, there are still issues with making sure that everyone in the country has fair access to technology. Li (2021) points out that whereas metropolitan areas enjoy the advantages of cutting-edge digital tools, rural and underdeveloped areas encounter major obstacles to internet connectivity and device access, which exacerbates educational disparities. The widespread success of NEP 2020 may be hampered by this infrastructure shortfall.

The policy's preparation of teachers for digital learning is another important component. Although China has made progress in offering teachers digital training, Zhang (2020) contends that the regularity and quality of this training are still inconsistent. Many teachers in isolated and rural locations still lack the abilities needed to successfully incorporate technology into their lesson plans. Furthermore, Wang (2021) criticizes the curriculum's sluggish response to the quick development of technology, arguing that the majority of the material is still traditional and that this leaves students unprepared for the changing needs of the digital economy.Furthermore, the NEP 2020 emphasizes the importance of online learning, while Xu (2020) expresses worries about students' social and mental growth. Students' well-being may suffer as a result of problems like digital fatigue and decreased social connection brought on by extended screen time and the switch to online learning during the epidemic. Additionally, the policy doesn't clearly address the ethical implications of data security and privacy in online learning settings, which is still a major worry in a society growing more interconnected by the day.

In conclusion, even though China's NEP 2020 provides a bold plan for integrating technology into education, its success depends on resolving infrastructure inequalities, improving teacher preparation, and modifying the curriculum.

Philosophical analysis:

South Africa:

Through the goal of giving every student equal access to learning resources, South Africa's National Education Policy (NEP) 2020 aims to transform education through the incorporation of technology. A philosophical examination of the program demonstrates a conflict between its aspirational objectives of digital inclusion and the real-world difficulties stemming from South Africa's socioeconomic circumstances. Since the goal of the policy is to level the playing field for students from a variety of socioeconomic backgrounds, it demonstrates a commitment to fairness from a Rawlsian perspective on justice (Mhlongo, 2021). However, this fairness is undermined by the digital divide between urban and rural areas, as underprivileged pupils still encounter access restrictions, which runs counter to Rawls' "justice as fairness" basis.

In addition, from the perspective of critical theory, the NEP 2020's focus on technology runs the risk of escalating rather than reducing already-existing disparities. Governance (2020) contends that a techno-deterministic approach, which assumes that technology alone will resolve ingrained societal problems, is reflected in the emphasis on digital tools without addressing underlying structural concerns, such as poverty and inadequate infrastructure. This viewpoint ignores the sociopolitical elements that influence educational results and raises the possibility that the policy indirectly supports inequality.

Additionally, the policy might be criticized using Foucault's ideas on surveillance and authority. A "panopticism" in education, where pupils are continuously watched, could result from the growing possibility of monitoring and controlling student behavior and performance due to the use of digital learning technologies (Naidoo, 2020). To prevent an overreach of governmental power, the ethical implications of data collecting and student privacy need to be discussed in greater detail.

In short, NEP 2020 presents a progressive vision, but its philosophical foundations require careful analysis to make sure that technology fosters inclusive and transformative education rather than escalating current disparities.

South Korea:

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A philosophical examination of South Korea's National Education Policy (NEP) 2020 shows both potential and obstacles, despite the policy's progressive ambition of incorporating technology into education. According to John Dewey's educational philosophy, which places a strong emphasis on experiential learning and the growth of critical thinking skills, the NEP's focus on technology may actually be beneficial for increasing student involvement and broadening access to a variety of educational resources (Lee, 2020). When carefully included, technology can offer students more individualized and engaging educational experiences, supporting Dewey's theory that education should encourage inquiry and problem-solving.

A more critical perspective is offered by Karl Marx's criticism of technology as a tool of control in capitalist civilizations. Marx would contend that although the NEP 2020 encourages digital literacy, it ignores the social and economic disparities that impact technological access (Choi, 2021). The disparity between South Korea's wealthy metropolitan schools and poor rural communities is a reflection of the material circumstances that influence educational results. Because people without sufficient access to digital tools may become even more isolated in an increasingly digital environment, the strategy runs the risk of exacerbating already-existing socioeconomic disparities.

Also, a critical perspective for examining the NEP 2020 is provided by Michel Foucault's theories of power and surveillance in the digital era. Increased monitoring of students' performance and learning habits may result from the usage of technology in the classroom (Sato, 2021). Although this information can be utilized to enhance teaching methods, privacy issues and the possibility of government control over student data are also brought up. This can result in the development of a surveillance-shaped learning environment that compromises students' independence.

In conclusion, South Korea's NEP 2020 presents chances to improve education while also necessitating a thorough analysis of the moral and social ramifications of using technology in the classroom.

Japan:

In order to create a workforce that is more flexible and prepared for the future, Japan's National Education Policy (NEP) 2020 encourages the addition of technology into the classroom. John Dewey's educational philosophy, which places a strong emphasis on experiential learning and the role that education plays in fostering critical thinking, can be used to philosophically examine the policy. According to Yamamoto (2020), Dewey would probably agree with the NEP's objectives of leveraging technology to develop individualized and interactive learning experiences. In this way, the policy supports Dewey's view that education should improve students' problem-solving abilities and adaptability in order to prepare them for active participation in society.

A critical theory viewpoint, however, expresses worries about how technology might serve to uphold current power structures. Particularly in rural locations or disadvantaged populations, the focus on technology integration may obscure the socioeconomic differences in access to digital tools (Tanaka, 2021). Because students from less affluent households might not have as many opportunities to interact with technology, this disparity could make educational inequality worse. The critique of technological determinism by Max Horkheimer and Theodor Adorno contends that although technological improvements are advantageous, they may also serve the interests of those in power, so sustaining inequality rather than resolving it.

According to Michel Foucault, the growing use of technology in the classroom may result in monitoring and manipulation, especially when it comes to gathering information on student performance (Sato, 2021). A "panopticism," in which children are continuously watched, could arise from this data-driven approach to teaching, possibly limiting their independence and inventiveness. Furthermore, by focusing on productivity and efficiency, the NEP may unintentionally restrict education to a kind of human capital development, ignoring the more comprehensive goals of critical reflection and personal growth (Ito, 2020).

In conclusion, a philosophical critique emphasizes the need for a more nuanced understanding of how technology effects educational equity, student autonomy, and the larger purposes of education, even though Japan's NEP 2020 offers an innovative approach to education.

China:

In order to modernize the system and get pupils ready for a digital future, China's National Education Policy (NEP) 2020 places a strong emphasis on integrating technology into the classroom. From a philosophical standpoint, this approach can be examined using John Dewey's educational philosophy, which places a strong emphasis on experiential

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learning and the development of critical thinking skills. Given that it promotes active participation and problem-solving in a digitally connected environment, Dewey would probably agree with the policy's objectives of integrating technology into education (Zhang, 2020). The policy's emphasis on digital literacy is consistent with Dewey's view that education should provide pupils with the technology skills necessary to properly engage in a democratic society in the modern world.

Nonetheless, a critical perspective on the NEP 2020 might be gained from Karl Marx's criticism of technological advancements in capitalist countries. Marx maintained that advances in technology frequently benefit the ruling class and worsen socioeconomic disparities. Although the policy encourages digital literacy in China, Li (2021) notes that differences in rural and urban access to technology could exacerbate already-existing educational gaps by denying vulnerable students equitable access to digital resources. Marx may contend that if technology is not applied with an eye toward equity, it could serve to strengthen current power systems.

Due to the ability to gather and evaluate performance data, the growing use of digital technology in education may result in more student surveillance. Concerns regarding privacy and the possibility of more control over students' educational experiences are among the ethical ramifications of this data collection that are brought up by Xu (2020). According to Foucault's concept of surveillance, these kinds of technologies may violate students' privacy and expose them to continual observation, which may stifle their ability to think critically and creatively.

In conclusion, even if NEP 2020 presents a progressive strategy for incorporating technology into the classroom, its philosophical ramifications draw attention to issues of power, equity, and surveillance that must be resolved if the policy is to fulfill its revolutionary potential.

III. DISCUSSION

The National Education Policy (NEP) 2020 outlines a comprehensive vision for integrating digital technology into India's education system to ensure equity, accessibility, and quality. One of the core elements of the policy is the enhancement of digital infrastructure, aiming to provide equal access to education, especially in rural and underprivileged areas. Through the creation of platforms like DIKSHA and NROER, NEP 2020 promotes online learning and resource sharing to support diverse learning needs. The integration of digital tools into the curriculum and the development of digital literacy from an early age are emphasized to ensure students are prepared for a technology-driven world.

NEP 2020 also highlights the importance of teacher training, ensuring educators are well-equipped to use technology effectively in the classroom. Continuous professional development and training in contemporary teaching methods, including the use of digital tools, are essential to enhance teaching quality. The policy encourages the use of educational apps and platforms, such as SWAYAM and DIKSHA, to facilitate learning and make educational resources widely accessible.

Furthermore, NEP 2020 emphasizes the use of virtual labs and simulations, particularly in STEM subjects, to offer students practical learning experiences regardless of geographical limitations. This allows students to conduct experiments, problem-solve, and engage in hands-on learning in a cost-effective and eco-friendly manner. The policy also supports the use of AI and data analytics to personalize learning, improve teaching strategies, and enhance assessment methods.

By prioritizing the development of digital infrastructure, teacher training, and the use of innovative technologies, NEP 2020 aims to create a more inclusive and effective educational environment, aligning with the broader goals of fostering creativity, critical thinking, and employability skills among students.

IV. CONCLUSION

Digital infrastructure in NEP 2020 is a core factor for upgrading the education system in India. By utilizing technology like e-learning platforms, artificial intelligence, learning management systems, and data analytics, it advances equity, accessibility, and high-quality education. NEP 2020 seeks to develop a more inventive, adaptable, and inclusive educational system that meets the needs of all students by incorporating digital resources and tools into all educational levels.

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In conclusion, virtual labs and simulations are essential to reaching the objectives outlined in NEP 2020. They encourage the development of critical 21st century skills and give all students, especially those in underserved or rural locations, access to high-quality education. NEP 2020 aims to create a more inventive, inclusive, and accessible educational system through technology-enabled learning experiences, where virtual labs are essential to student achievement.

A key component of the National Education Policy (NEP) 2020, teacher training is essential to accomplishing the goals of the policy, which include enhancing the quality of education, creating a learner-centric environment, and incorporating technology into the classroom. The goal of the strategy is to establish a more competent, flexible, and efficient teaching workforce that can offer all students, regardless of their background or location, a high-quality education by funding thorough and ongoing professional development.

Through the efficient use of instructional apps and digital resources, the National Education Policy 2020 seeks to transform India's educational system. These modifications are intended to promote interactive learning, increase accessibility, raise educational standards, and assist teachers' and students' ongoing professional development. Apps and digital platforms will be essential to achieving NEP 2020's goal of an accessible, fair, and adaptable educational system given our growing reliance on technology.

The use of data analytics and artificial intelligence (AI) in education is revolutionizing efficiency, equity, and personalization. By improving learning outcomes, enabling data-driven decision-making, supporting individualized learning, and facilitating real-time evaluations, artificial intelligence (AI) and data analytics are crucial in revolutionizing educational practices, according to NEP 2020. Teachers' effectiveness is increased, different learning requirements are met, and an inclusive, future-ready educational system is created with the use of these technologies.

According to NEP 2020, assessment technology significantly contributes to the transformation of the educational landscape. Education can shift from conventional, one-size-fits-all evaluation models to more dynamic, student-centered approaches by utilizing AI, adaptive learning platforms, automated grading, real-time feedback, and individualized assessments. Teachers can better monitor student progress, offer timely interventions, and create a more comprehensive, competency-based learning environment by utilizing technology. According to NEP 2020, technology will enable educators and learners to participate in education in more meaningful ways in the future.

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