

NATIONAL EDUCATION POLICY 2020- THE KEY TO DEVELOPMENT IN INDIA (VOLUME-1)

Editor

Dr. R. Murugesan

Assistant Professor in the Department of Physical Education and Yoga.

&

Co-Editor

Dr. D Sendil Kumar

Director at Senthil College of Education, Puducherry.



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About the Book

"NATIONAL EDUCATION POLICY 2020: The Key to Development in India" provides a comprehensive examination of the NEP 2020 and its transformative potential. This book offers a comprehensive examination of the policy's primary components, which include early childhood education, school education, postsecondary education, vocational training, and adult education. The proposed reforms and their anticipated impact on the Indian education system are the focus of each chapter, which is dedicated to a specific aspect of the policy. The book also explores the strategies and challenges of implementation, providing policymakers, educators, and stakeholders with practical insights.

The book demonstrates how NEP 2020 can resolve existing gaps and establish a more equitable, innovative, and quality-driven education landscape by means of case studies, expert opinions, and comparative analyses. The goal is to cultivate a more profound comprehension among readers by providing a fair assessment of the policy's strengths and potential areas for refinement. The book underscores the significance of collaborative endeavours in the realisation of the vision enumerated in NEP 2020 by emphasising the role of education in national development, thereby contributing to India's growth and prosperity.

Preface

The National Education Policy (NEP) 2020 represents a significant milestone in the development of India's education system. The objective of this comprehensive policy, which was implemented after a 34-year hiatus, is to adapt to the evolving requirements of the nation and the global environment. NEP 2020 is intended to revitalise the Indian education sector, ensuring that it is in accordance with the needs of the 21st century and contributes to the nation's socio-economic improvement. The policy envisions a multidisciplinary, flexible, and comprehensive approach to education that encourages the development of life skills, creativity, and critical thinking.

This book explores the diverse aspects of NEP 2020, emphasising its capacity to revolutionise the educational system in India. We investigate the potential of this policy to serve as a catalyst for development, fostering innovation, inclusivity, and excellence, through a comprehensive analysis and discussion. The objective is to foster a comprehensive comprehension of NEP 2020 and its implications among readers, thereby motivating stakeholders to actively engage in its implementation and realisation. As India is on the brink of a new educational era, this book provides a glimpse into the pathways that will result in a more progressive, knowledgeable, and empowered society.

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Language Education Policies: Insights from Comparative Studies

Dr. T.V.S. Padmaja^{1*}

¹*Principal & Head, Department of English.*

Abstract

The education policy in India, which aims to foster global opportunities and promote multilingualism, mandates the inclusion of foreign languages, English, and regional languages in the curriculum from primary to higher education. The following paper presents an analysis of the policy highlights of NEP 2020 and 1986, detailing how well both initiatives have performed in practice. It then compares the two initiatives based on a number of criteria. Moreover, the paper discusses the measures implemented by the National Curriculum Framework in order to realise the objectives set forth in NEP 2020.

Keywords: NEP 2020, NEP 1986, Education, literacy, Comparative factors.

1 Introduction

The National Education Policy (NEP) for India was amended, revised, and approved on July 29, 2020, marking its thirty-fourth anniversary. The policy represents a significant turning point for the Indian education system, rendering India an undeniably appealing global hub for higher education. In accordance with the tenets of "Access, Equity, Quality, Affordability & Accountability," the policy will metamorphose India into a hive of intellectual activity. NEP 2020 prioritises institutional and systemic enhancements to oversee, promote, and regulate multidisciplinary research and academic activities in Indian HEIs. The advent of NEP 2020 has ushered in a paradigm shift in the Indian educational landscape. The policy envisions an education system centred on India that is conducive to the country's transition into a thriving knowledge society. The primary objective of the new education policy is to

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establish a well-resourced and multidisciplinary educational system through the consolidation of various academic institutions and disciplines. This consolidation is an ongoing effort to ensure that the system meets the evolving requirements of students.(MR Shubadha & MR Nirarth, 2021)

1.1. Highlights of New Education Policy – 2020

1. This will supersede the National Policy on Education (NPE), 1986, which is thirty-four years old. It is the first education policy of the twenty-first century.
2. The newly implemented policy seeks to achieve educational universality across all levels, from pre-school to secondary. It establishes a target of 100 percent Gross Enrollment Ratio (GER) within school education by 2030, and 50 percent GER in higher education by 2035.
3. The formulation of a "national book promotion policy" is imminent.
4. Academic assessments will be administered to all pupils in Grades 3, 5, and 8 under the direction of the relevant governing body. The syllabi for both 10th and 12th grades will remain on the board, but they will be redesigned with an emphasis on comprehensive growth.
5. The National Council for Teacher Education will, by 2022, establish a unified set of "National Professional Standards for Teachers" (NPST) in collaboration with SCERTs, teachers, NCERT, and expert organisations representing various levels and regions.
6. The objective of NEP 2020 is to augment the Gross Enrollment Ratio in higher education, encompassing vocational education, from 26.3 percent in 2018 to 50 percent by 2035. Additionally, the programme seeks to supply 3.5 crore additional seats to institutions of higher learning.
7. The policy intends comprehensive, multidisciplinary, and holistic measures. An undergraduate programme that offers flexible curricula, innovative subject combinations, vocational education integration, and multiple entry and departure points with the appropriate certification.
8. "Multidisciplinary Education and Research Universities" (MERUs) that are on par with IITs and IIMs in order to establish models for the nation's finest multidisciplinary education according to international standards.
9. The establishment of an autonomous organisation known as the "National Education Technology Forum" (NETF) will facilitate the unrestricted interchange of thoughts regarding the application of technology in order to improve administration, learning, assessment, and planning.
10. NEP suggests establishing a National Institute (or Institutes) for Pali, Persian, and Prakit, an "Indian Institute of Translation and Interpretation" (ITI), and strengthened Sanskrit and language departments in higher education institutions (HEIs). Additionally, it is suggested that more HEI programmes incorporate mother tongue or local language as the medium of instruction.

1.2. Highlights of NPE 1986

In 1985, the Government of India conducted an assessment of the existing education system and issued a policy statement titled "Challenge of Education: A Policy Perspective" outlining the outcome. In May

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1986, former Indian Prime Minister Rajiv Gandhi unveiled the National Policy on Education. It was the intention of the new education policy to equip India for the twenty-first century.

1. Retention, enrollment, and accessibility to institutions for all students until the age of fourteen.
2. Enhancement of education quality through the following measures: improvement of the school environment; implementation of an activity-centered and child-centered teaching methodology; ongoing assessment throughout the academic year; elimination of all forms of physical punishment; maintenance of the practice of not failing students in any elementary course; and provision of basic facilities in primary schools.
3. The establishment of "Navodaya Vidyalaya" was an additional turning point in the annals of education.
4. The policy prioritised the integration of children with motor disabilities into regular educational settings and established special schools within the district headquarters.
5. The national education system, as proposed by NPE 1986, is predicated on the widely acknowledged framework of 10+2+3.
6. Establish primary education institutions in remote regions, such as residential schools or ashrams in tribal areas.
7. Facilitating informal education for children who have withdrawn from schools, are residing in areas without schools, or have been between schools.
8. It was recommended that the +2 level be incorporated into the national curriculum.
9. With the establishment of the "Indira Gandhi National Open University" in 1985, it further expanded the Open University system, prioritised adult education, and fostered the growth of new academic institutions.

1.3. Approach to Language Education and Literacy

The development of curricula is underpinned by the National Curriculum Framework. The document furnishes the fundamental principles, objectives, framework, and components necessary for the creation of curricular materials, textbooks, learning resources, syllabi, and other instructional materials. Furthermore, it facilitates the integration and alignment of pedagogical practices and assessment methodologies. For students in grades 3–18, this paper details the plans for curricular and pedagogical reforms to schooling throughout the four phases of the 5+3+3+4 model, as outlined in NEP 2020. To realise the objectives of NEP 2020 with regard to providing fundamental education in the native language and, whenever feasible, utilising multilingualism. The following are some methods for teaching languages at various grade levels:

Foundational Stage

- Given that children acquire knowledge of concepts at a faster rate when speaking their native tongue, the principal mode of instruction during the Foundational Stage (in both public and private institutions) would be the child's native language, also known as maternal tongue or

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familiar language (L1). For this reason, it is crucial to have local educators who are well-versed in the local customs and culture.

- Children should be routinely exposed to a minimum of two and preferable three languages (referred to as L2 as well as L3 below) beginning at a young age, in the presence of both teachers and parents.
- Whenever feasible, the foundational stages of reading and writing instruction are carried out in the first language via guided reading, picture and narrative books, read-aloud books, drawing, labelling, and additional guided writing methods.

Preparatory Stage

- Students gain proficiency in verbal communication and are able to articulate abstract concepts in their first and second languages. In addition, they improve their reading proficiency by perusing unfamiliar texts (such as narrative, argumentative, prose, and poetry) and by acquiring a foundational comprehension of them.
- In order to cultivate proficient writing and effective communication in their first and second languages (L1 and L2), pupils acquire an extensive vocabulary from diverse sources and in a variety of contexts (including academic and personal life).

The Middle Stage

- Students cultivate the ability to communicate effectively through the application of diverse language skills (e.g., analysis, description), as well as the capacity to identify and employ fundamental linguistic elements (e.g., sentence structure and vocabulary) in both written and spoken forms in their first and second languages.
- Students cultivate an affinity for reading and writing in their first language through an examination of various literary devices, genre structures (comedy, suspense, tragedy), and forms (poetry, prose, drama).
- Students acquire the proficiency to articulate their reflections, emotions, and personal encounters regarding social gatherings (e.g., festivals, fairs) in their second language (L2) while also demonstrating the ability to identify and employ fundamental linguistic elements (e.g., sentence construction and vocabulary) in both written and spoken forms of communication.

The Secondary Stage

- By engaging with a variety of written and audio-visual materials and utilising L1 and L2 to communicate effectively in writing of various forms (e.g., essays, letters, articles, speeches in public, e-mail, audio-visual material, etc.), students develop their reasoning and argumentation abilities.
- Students will earnestly recognise the aesthetic value of various genres (comedy, suspense, tragedy), writing styles (narrative, descriptive, expository, persuasive), and story contents. Furthermore, they will possess the ability to incorporate these elements into their first-language writing.

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It is mandatory for secondary school pupils to select one native language of India (from L1, L2, or L3) in order to acquaint themselves with the country's rich literary heritage.

1.4. Comparative factors between the two policies

Factors	NEP 2020	NEP 1986	Comparison
Released By	“Ministry of Human Resource Development”	“Govt of India, Ministry of Education”	The NEP 2020, initiated on July 29, 2020, by Union Cabinet of India, delineates the overarching vision for India's forthcoming education system. However, the Indian government enacted NPE 1986 to promote as well as regulate education in India.
Academic Structure	5+3+3+4 format	10+2 format	The 5+3+3+4 structure, which NEP 2020 mandates incorporates “Early Childhood Care and Education” (ECCE) beginning at age 3, is intended to promote improved learning, development, and well-being overall. An endeavour will be made as well to have +2-stage incorporated into school curricula across the nation, in accordance with the 10+2+3 structure established by the NPE 1986, which stipulated that primary stage should comprise five years, followed by three years of upper primary and two years of high school.
Languages	3 language- by state, region, and choice of student	3 languagesHindi, English, and the regional	NEP 2020 suggested three language formulas: first, the individual's mother tongue or a regional language; second, other contemporary Indian languages or English; and third, English or a contemporary Indian language in Hindi-speaking states. According to the NPE 1986, however, schools are required to teach English, Hindi, and one contemporary Indian language.
Test Conducted by	A aptitude test or examination will be administered by the National Testing Agency (NTA) in the fields of science, humanities, languages, arts, as well as vocational	The formulation of a National Examination Reform Framework would function as a manual for examining bodies, granting them the	NEP 2020 declared that the National Testing Agency (NTA) will administer a unified entrance examination to all colleges and universities for undergraduate admissions. However, in order to develop a comprehensive plan for reforming national examinations, the Department of Education intended to establish an interinstitutional committee in

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	disciplines.	autonomy to modify and enhance the framework in accordance with particular circumstances.	1986. This committee would consist of representatives from the UGC, NCERT, AICTE, as well as state-level organisations such as the Board of Secondary Education.
Curriculum	New Curricular as well as Pedagogical Structure: Accreditation standards are to be established to classify autonomous colleges and universities into teaching-oriented and research-oriented categories according to their curricula, with an emphasis upon early childhood care and education.	A number of Curriculum Development Centres were to be established to promote the requirements of application-oriented study and specialisation in the curriculum.	The objective of the National Education Policy 2020 (NEP 2020) is to establish four National Curriculum Frameworks (NCFs). To achieve this, the Ministry of Education (MoE) as well as the National Council of Educational Research and Training (NCERT) have collaborated to develop a comprehensive strategy. NPE-1986, on the other hand, emphasised early childhood education, which included strategies for the child's physical, motor, cognitive, linguistic, emotional, social, and moral development, all of which were crucial for children younger than six years old.
Teachers Training	All HEIs shall offer one-year, two-year, and four-year B.Ed. programmes, respectively, in accordance with the number of years candidate has completed since graduation.	Policies pertaining to the professional development of educators at every tier, spanning elementary to tertiary, were established.	The government takes an active role in the development of an integrated B.Ed. programme through NEP 2020; completion of the programme requires four academic years. In this regard, teacher education is regulated by the "National Council for Teacher Education" (NCTE), which also promotes the B.A.-B.Ed. programme, which assists prospective educators in reaching their utmost capabilities. NPE 1986 Proclamation In light of current training requirements, the current programme for teacher educators may be adapted accordingly. The faculty induction and ongoing training programmes for DIETs/CTEs/SCERTs shall be formulated and executed by the NCERT, NIEPA.

2 Literature Review

(S & Praseeda, 2020) This paper undertakes an examination of Indian National Education Policy 2020 (NEP) within Higher Education in relation to its international standing, drawing inspiration from the educational policies implemented in countries such as Australia, China, Germany, and Singapore. NEP 2020 supports comprehensive development by employing a multidisciplinary approach that incorporates digital learning, curriculum and course autonomy, advanced technology, business acumen, and global education.

(Mallik, 2020) The destiny of a child is contingent upon the schooling he or she receives. Although the adage "education begins at home" is certainly accurate, the way in which a child is instructed in school is equally influential in shaping his or her way of life. Their social standing, professional trajectory, and innermost being are all influenced by the education they obtain in school. Additionally, a clearly defined and meticulously devised education policy contributes to the advancement of a country's economic standing and societal standing. A nation's education policy is determined by its culture, tradition, and societal perspective. Furthermore, in light of the growth observed among the most valuable asset of our nation, which is its intellectual youth, it appears that implementing a novel educational policy is a forward-thinking idea. This paper focuses on elucidating the novel developments and adaptations in NEP 2020, in addition to analysing its merits, implications, and enhancements in relation to the current policy.

(K., 2021) Education has been on a continuous evolution since the dawn of time. Whether it be the wisdom imparted by nature during bygone eras, gurukulas during the reign of numerous kings, post-independence government schools and colleges, convents, international schools, or deemed universities in the twenty-first century, the overarching goal of these establishments is to educate the human race. Education encompasses more than mere academic engagement and university graduation; it entails the comprehensive growth and progress of an individual across all domains—physical, mental, financial, and economic. The purpose of education is to foster an individual's holistic development and transform him into a productive member of society for the nation of tomorrow. In order to meet the increasing demand for employment and career prospects, as well as to express and promote its distinct sociocultural identity, each nation develops its own educational system.

(MR Shubadha & MR Nirarth, 2021) On July 29, 2020, the "Union Cabinet of India" granted approval to the NEP 2020. Former ISRO Chairman Dr. K Kasturirangan, who presided over a committee established by the "Ministry of Human Resource Development", delineated the overarching vision for India's forthcoming education system. The New Education Policy addresses Quality, Affordability, Equity, Access, and Accountability, among other challenges confronting the current education system. NEP 2020 proposes an education system centred on India, which actively supports the sustainable transformation of our country into a knowledge-rich, equitable society by ensuring that all individuals have access to high-quality education. This article highlights the significant distinctions between the present education policy, specifically the New Education Policy of 1986, and the New Education Policy of 2020.

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(Santoshi, 2021) Education is a pivotal determinant in the progress and advancement of a nation. A significant allocation of resources towards human capital development fosters the long-term viability of the economy. It increases human capital, fosters entrepreneurship, and promotes technological progress. In essence, it serves as a catalyst for promoting social and economic advancement while also coordinating the distribution of income. The Finance Minister stated in the Union Budget 2021-22 that the recently launched NEP with the theme "reinvigorating human capital" has been well received. The current paper provides an overview of national education policies as well as major transformations that have occurred within the education sector over the past decade. The information for this descriptive study is gathered from secondary sources. Finally, the paper disclosed that the education sector underwent profound transformations.

(Sc & Scholar, 2022) The foundation of national development is education. Economic growth, social justice as well as equality, scientific progress, national integration, as well as cultural preservation are all dependent on it. It can increase the universal value of our nation. India is a youthful nation, with the majority of its population consisting of individuals between the ages of 20 and 40. The country's future will be determined by its capacity to offer these individuals high-quality educational opportunities. Therefore, it is imperative to revise the educational policy of 1986, which was reevaluated in 1992, in light of the rapid transformations occurring in the global knowledge environment. Our ancient frontier has been renowned for its educational knowledge, as eminent saints such as Chanakya, Aryabhata, and Shankracharya contributed significantly to the advancement of education. Character can be developed through education; students can become rational, compassionate, and ethical while also being prepared for gainful, satisfying employment.

(Lowe & Galhotra, 2023) This scholarly article undertakes an exhaustive comparative examination of rural education reforms in India, specifically comparing the modifications enacted prior to and subsequent to the implementation of the National Education Policy (NEP) in 2020. The principal aim of this research is to evaluate the consequences of the NEP 2020 upon rural education through an analysis of the significant policy changes, ramifications, and results within rural educational environments. Prior to the National Education Policy 2020, rural education faced numerous obstacles, such as insufficient infrastructure, restricted availability of high-quality education, and substantial discrepancies in academic achievements between urban and rural areas. In an effort to tackle these concerns, the NEP 2020 implemented a sequence of paradigm-shifting reforms. In order to accomplish this, the research utilises qualitative interviews with crucial rural education stakeholders. Curriculum reforms, teacher preparation, infrastructure development, as well as the incorporation of technology within rural classrooms will all be included in the analysis.

(Rajitha, 2023) On July 29, 2020, Union Cabinet of India granted its approval to the NEP 2020. Former ISRO Chairman Dr. K. Kasturirangan, who presided over a committee established by the Ministry of Human Resource Development, delineated the overarching vision for the new education system in India. The New Education Policy addresses Quality, Affordability, Equity, Access, and Accountability, among other challenges confronting the current education system. In order to attain developed status, India must

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not only establish a knowledge-driven economy that is thriving, but also a new society that prioritises justice and human values.

(Mahanta, 2023) On July 29, 2020, Union Cabinet of India granted approval to the NEP 2020. Former ISRO Chairman Dr. K Kasturirangan, who presided over a committee established by the Ministry of Human Resource Development, delineated the overarching vision for India's forthcoming education system. Quality, Practicality, Equity, Access, as well as Accountability are a few of the issues that the New Education Policy seeks to rectify in the existing educational system. NEP 2020 proposes an education system centred on India, which actively supports the sustainable transformation of our country into a knowledge-rich, equitable society by ensuring that all individuals have access to high-quality education. The Government of India has devised National Policy on Education (NPE) with the intention of promoting and regulating education in the country. The policy encompasses higher education as well as primary education in urban as well as rural regions of India. NPE 1986 was issued by the Indian government under the leadership of Prime Minister Rajiv Gandhi.

(B & N, 2024) The educational system in India is a fusion of modernity and tradition, contending with obstacles while adapting to the requirements of an ever more dynamic global landscape. Furthermore, it embodies a variety of pedagogical approaches that reflect the nation's abundant cultural legacy. An essential aspect of it is the establishment of a competitive atmosphere, which promotes scholarly rigour. Nonetheless, this frequently places students under tremendous stress, which negatively impacts their mental health. There are times when the prioritisation of academic performance diminishes the significance of practical abilities and comprehensive growth. Notwithstanding its difficulties, the education system in India possesses a resilient framework. Furthermore, endeavours such as the National Education Policy (NEP) 2020 endeavour to overhaul the system by emphasising curriculum flexibility, multidisciplinary learning, and skill-based education; this represents a turning point in the educational milieu of India.

(Rajeev & Naik, 2024) The New Education Policy (NEP 2020), which was declared by Government of India, came as a welcome respite and novel development amidst the global downturn brought about by the Covid-19 pandemic. The NEP 2020 announcement came as an absolute surprise to many. Many education professionals failed to observe the modifications that NEP 2020 has suggested. While education policy has had an equal impact on both secondary and tertiary education, this article is predominately concerned with NEP 2020 and its implications for higher education. In addition, this article examines the impact of NEP's prominent characteristics on the current educational system.

3 Conclusion

Upon careful examination of the numerous papers referenced in the reviews, it has been determined that the two preceding national educational policies have contributed to the development of India's educational system. Additionally, the National Curriculum Framework's curricular development approaches, which describe how they have facilitated the alignment and integration of pedagogical

practices and assessment methodologies, have provided valuable insights for the formulation of future policies.

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Globalization and Education: Impacts on Curriculum and Pedagogy

Dr. Uma Rajmohan^{1*}

¹ Assistant Professor.

Abstract

The National Education Policy 2020 (NEP 2020) is a comprehensive policy designed to restructure the higher education system and establish a road map for a new India. Its purpose is to revamp the education system. This paper undertakes an analysis of the NEP's approach to promoting globalisation and offers insightful observations on its pedagogical reforms and curriculum. Additionally, it explores possible challenges as well as strategies for "higher education initiatives" in India.

Keywords: NEP 2020, Globalization, Internationalization, curriculum, pedagogy.

1 Introduction

NEP 2020 is an urgent requirement in the current era of globalisation and paradigm transition from traditional towards multidisciplinary education approaches. Access, integrity, and fairness will be incorporated into the reforms of the New Education policy within the existing educational system. To attain the Sustainable Development Goals in this era of transformation, India has implemented the New Education Policy 2020 to ensure that all individuals have access to a quality education that is equitable. India requires a new education policy in order to reform its educational system. This policy marks the inaugural effort beyond education policy of 1984 to comprehensively address all facets of educational development. Both the governance and regulatory components of education policy have been redesigned to be more comprehensive. By eliciting and nurturing students' intellectual and creative capacities, NEP 2020 aims to foster the development of well-rounded individuals. It stimulates the development of individuals' cognitive, critical, social, ethical, and affective faculties and dispositions. Languages, and

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most significantly, our diverse cultural heritage, will now be incorporated into the educational system. Significant shifts from earlier iterations of educational policy have been infused into the New Education policy, particularly with regard to pedagogical approaches, evaluation, assessment, and curriculum creation.(Malla Avila, 2022)

1.1 Key Thrust areas of New Education Policy 2020

1. Early Childhood Care and Education and School Education

The "National Education Policy" has implemented long-awaited reforms to the system while introducing a new paradigm for school education. It guarantees equal opportunities for all children to attend school and college, as well as skill-based education.

2. Higher Education

The establishment of the "Higher Education Commission" of India, which oversees the entire higher education system, is one of the paradigm highlights of NEP 2020. Enhancing the "Gross Enrollment ratio" from 26.3% to 50% by 2035 is the ambitious objective of the NEP. This requires quality colleges and universities, an accessible and inclusive higher education system, and well-compensated faculty.

3. Imparting Vocational education in schools and development of higher education pathways

To attain Sustainable Development Goal 4.4, NEP 2020 prioritises the implementation of vocational-training programmes at the school level, thereby equipping the nation with proficient labour. To accomplish this, vocational and higher education must be integrated through the development of a hybrid educational system.

4. Embracing the digital shift

NEP 2020 leads the charge in India towards adopting digitalization in education. The implementation of novel blended learning strategies, including gamification, audio-visual integration, and narrative, will revolutionise the students through global learners as part of NEP 2020. However, this necessitates the implementation of destructive technologies, digital infrastructure, and online course offerings within syllabi.

1.2 Globalization in Higher Education

The term "globalisation" denotes the progressive interconnection and reliance of nations and collectives at an international level. The process involves the international transfer of commodities, services, knowledge, concepts, and individuals, ultimately leading to the worldwide harmonisation of economies, societies, and cultures. The ramifications of globalisation are extensive, encompassing various spheres of society such as education, politics, economics, culture, and technology. Higher education often perceives internationalisation as a deliberate reaction or strategic manoeuvre in response to the overarching challenge of globalisation. By creating global competencies and fostering cross-cultural comprehension, it is considered a proactive strategy for preparing students for success in an increasingly

interconnected global society. Internationalisation is generally executed at the institutional or just individual level, whereas globalisation affects numerous facets of life, including higher education, on a societal and global scale.

1.3 Curriculum Reforms

1. Emphasis on Multidisciplinary Learning

Promoting a multifaceted strategy that permits students to investigate a wide range of subjects and disciplines, NEP 2020 endeavours to eliminate the barriers between academic fields. This diverges from the conventional and inflexible trajectories of academia, industry, and science. The policy replicates the adaptability observed in American and European global education systems by permitting students to select subject combinations in accordance with their individual interests. This methodology facilitates the formation of versatile, well-rounded individuals, thereby equipping them more effectively to navigate the intricacies of the contemporary global labour market.

2. Integration of Global Knowledge

The policy requires the incorporation of current and internationally significant topics into the academic curriculum, including artificial intelligence, big data analytics, as well as digital literacy. Through the integration of these subject matter, NEP 2020 guarantees that Indian students do not lag behind in the rapid technological progressions that are taking place on a global scale. Ensuring students possess these essential skills is critical in order to adequately prepare them for the future labour market, where expertise in such state-of-the-art technologies is progressively coveted. Furthermore, the curriculum incorporates essential global understanding such as sustainable development, climate change, and international relations in order to cultivate a sense of global responsibility and consciousness.

3. Cultural Literacy and International Awareness

Education concerning global citizenship and cultural sensitivity are emphasised in NEP 2020. Lessons on international cultures, world history, and global issues are incorporated into the intended curriculum. The ultimate objective of this educational endeavour is to foster in pupils a sense of global citizenship, thereby enhancing their understanding and compassion for regions beyond their immediate surroundings. A comprehension of diverse cultures as well as global dynamics is imperative in an interdependent society where cultural sensitivity and effective international cooperation are critical factors for achieving personal and professional accomplishments.

1.4 Pedagogical Reforms

1. Learner-Centric Approach

The transition to a learner-centric approach in NEP 2020, in which the demands and experiences of student take precedence over the agenda of the instructor, is a significant change. Active learning is promoted by means of interactive, discussion-based, as well as experiential methodologies within this pedagogical transition. It fosters innovation, problem-solving, and critical thinking. These approaches

are vital in cultivating self-directed thinking and continuous education, both of which are indispensable competencies in the global marketplace. Education becomes more effective and engaging when it caters to the various requirements and learning styles of the students through a learner-centered approach.

2. Technology-Enhanced Learning

Consistent with worldwide patterns, NEP 2020 prioritises the integration of technology into the field of education. To enhance the learning experience, this includes the utilisation of digital tools, online resources, as well as virtual classrooms. The objective of the policy is to ensure that all pupils have equitable utilisation of technology and to bridge the digital divide. The integration of technology into the policy serves to update the educational experience while also equipping students with the necessary skills to succeed and navigate the digital landscape. The integration in question is of the utmost importance, given that digital literacy is increasingly recognised as an essential ability in nearly every sector worldwide.

3. Continuous Professional Development

NEP 2020 acknowledges the significance of continuous professional development for educators in order to furnish them with the most current pedagogical competencies and understandings. The policy mandates that educators participate in periodic training programmes, seminars, and gain international exposure. Ongoing learning enables educators to remain informed about current global trends in education and optimal methodologies, thereby augmenting their pedagogical effectiveness. The objective of NEP 2020 is to enhance the quality of education as a whole and guarantee that Indian educators are capable of meeting global benchmarks through investments in teacher development.

1.5 Language and Communication

1. Multilingualism

Advocates for multilingualism, the policy motivates pupils to acquire proficiency in various languages. This practice serves the dual purpose of safeguarding India's abundant linguistic legacy and augmenting intellectual capacities and cross-cultural comprehension. The global employment market is placing a greater emphasis on multilingualism due to its association with adaptability and effective communication abilities. Through the promotion of multilingualism, NEP 2020 endeavours to enhance the adaptability and global competitiveness of Indian students. In addition, proficient in multiple languages can improve cognitive processes and enhance students' capacity to comprehend intricate ideas in a variety of disciplines.

2. English Language Proficiency

NEP 2020 promotes regional languages while concurrently underscoring the significance of English language proficiency. As a lingua franca on a global scale, English is indispensable for international collaboration and communication. The policy guarantees that students acquire a proficient command of English in addition to their native language. Students are prepared to confidently participate in academic, professional, as well as social contexts on a global scale through this dual emphasis. In today's globalised

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society, English proficiency is an indispensable skill because it facilitates access to higher education, international employment markets, and networking opportunities.

1.6 International Collaboration and Exchange

1. Academic Collaboration

NEP 2020 promotes collaborations between academic institutions in India and around the world. This includes initiatives for faculty and student exchange, joint research, and twinning programmes, in which students complete a portion of their coursework at an international institution. These partnerships expose educators and students to international educational practices as well as standards. Additionally, they promote an environment that encourages creativity and transcends cultural boundaries, thereby augmenting the scholastic and vocational proficiencies of Indian staff and students.

2. Global Best Practices

The policy supports the adoption and modification of international educational best practices. This entails the examination of effective educational frameworks from various countries and the application of these tactics within the specific context of India. By emulating the practices of international education leaders, NEP 2020 seeks to improve the calibre of education in India. By adopting this methodology, it guarantees that students from India are provided with a education that is not solely pertinent to their local environment, but also holds global competitiveness. Utilising global best practices contributes to the development of a forward-thinking, dynamic education system capable of generating world-class talent.

1.7 Internationalisation in Indian Higher Education

The importance of internationalisation in higher education is acknowledged by the National Education Policy, which underscores the criticality for Indian-institutions to attain global competitiveness. The policy seeks to establish Indian institutions of the highest calibre, which will have the capacity to draw in international scholars, staff, and partnerships (NEP, 2020). NEP (NEP, 2020) further advocates for the establishment of partnerships between Indian and international academic establishments with the aim of fostering research, innovation, and collaboration. The objective of these provisions is to foster international mobility, cultivate a global perspective, and enhance the calibre of higher education in India. The NEP provides fundamental ideas for the internationalisation of higher education, including an emphasis on equity, relevance, and quality. The policy prioritises the harmonisation of higher education in India with international benchmarks.

The National Education Policy (NEP) 2020 has identified higher education internationalisation as a critical area of focus. Its objective is to enhance the global competitiveness, quality, and relevance of "Indian higher education institutions" (HEIs). Experts and scholars discussed a variety of internationalisation strategies outlined in the NEP. Promoting partnerships and international cooperation is one of the NEP's primary strategies. Collaboration on an international level has the potential to enhance the research capabilities, curriculum advancement, and global visibility of Indian higher education institutions. The report underscores the importance of establishing strategic partnerships with esteemed

international universities, research institutes, as well as organisations as a means to facilitate cross-cultural learning, faculty and student exchange, and collaborative research.

The NEP also delineates the promotion of educational programmes and the mobility of international students as an additional approach. The prospective advantages of study abroad initiatives in enhancing the intercultural competence, employability, and global perspective of Indian students. These studies underscore the importance of endorsing study abroad opportunities via standardised policies, financial aid, and accreditation processes to ensure their quality and applicability. Moreover, in pursuit of globalisation, the NEP places significant emphasis on the expansion of internet-based and digital education.

1.8 Challenges Faced

Although globalisation has bestowed upon Indian education system a multitude of advantages, it has also introduced distinct obstacles:

1. Cultural Assimilation

The incorporation of global influences into Indian education may potentially result in the dilution of the nation's distinct cultural heritage. In order to maintain a sense of identity as well as cultural pride, it is necessary to confront the challenge of integrating global perspectives while preserving local traditions and knowledge.

2. Inequality and Accessibility

While globalisation has undoubtedly enhanced educational accessibility, its impact on different sectors of Indian society remains uneven. Rural regions and marginalised communities continue to encounter obstacles pertaining to infrastructure, resources, and the provision of high-quality education. It is vital that this inequality be addressed so that everyone can enjoy the benefits of globalisation.

3. Standardization vs. Localization

Standardised education systems, frequently prioritised by globalisation, might not correspond with the multifaceted cultural, linguistic, as well as regional milieu of India. Ensuring a harmonious coexistence of localised content and global standards is crucial for safeguarding the distinctiveness and pertinence of education within India.

1.9 Strategies to Maximize the Benefits of Globalization

Notwithstanding the predominantly favourable effects of globalisation on education in India, it is imperative to optimise its advantages while concurrently confronting the obstacles it presents.

1. Promoting Cultural Exchange

Promoting cultural exchange initiatives and engagements within academic establishments can foster in students a sense of global consciousness and an appreciation for their cultural heritage. Through festivals,

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linguistic exchange programmes, and collaborative initiatives with international institutions, this can be accomplished.

2. Strengthening Infrastructure and Accessibility

In India, there are ongoing endeavours to address the digital divide and enhance the availability of high-quality education in remote regions and underprivileged communities. This encompasses the provision of internet connectivity, infrastructure investment, and the accessibility of educational resources in the local languages.

3. Curriculum Localization

It is essential, when implementing global best practices, to adapt the curriculum to local circumstances and requirements. Through the integration of regional history, languages, as well as cultural studies, pupils can not only benefit from a global education but also foster a robust sense of identity.

4. Teacher Training and Professional Development

It is essential to equip educators with the skills and knowledge required to implement a globalised curriculum. Creative methods of instruction, cross-cultural communication, as well as the integration of technology in the classroom should be the focal points of teacher preparation programmes.

5. Government Policies and Regulations

The government's influence on the effects of globalisation on education is critical. It is imperative that policies strive to foster inclusiveness, oversee the calibre of private educational establishments, and guarantee accessible and affordable education for every sector of the population.

2 Literature Review

(Dr Ashwini Roy A.S, 2016) This article will analyse the ways in which globalisation challenges the conventional conceptions of higher education curriculum as well as assess the potential effects and ramifications of globalisation on educational practices in this domain. The main purpose of this research was to ascertain the effects of globalisation on higher education as well as raise awareness regarding the necessity for a reevaluation of educational practices within the curriculum of higher education. The data presented in this paper was acquired through a comprehensive review of the relevant literature, including books and peer-reviewed journal articles retrieved from search engines.

(A. Kumar, 2021) The National Education Policy 2020 (NEP 2020) is designed to provide a road map for a new India and to revamp the education system. On July 29th, 2020, the Indian cabinet gave its approval. This is the first endeavour in a paper to examine the India 2.0 vision and NEP 20020 in an effort to transform the education system as a whole in order to meet challenges of the twenty-first century. This exploratory study utilises secondary data as its foundation. Existing literature was systematically reviewed to arrive at these results. An identified primary aim of NEP 2020 is to augment student enrollment across all levels of education, including elementary, professional, and tertiary

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institutions, by the year 2030. In order to accomplish this objective, progressive reform has been proposed for the current education as well as governance systems.

(Patil, 2022) Teachers fulfil a crucial function in advancing the standard of education, thereby contributing significantly to the progress of any nation. Teachers constitute the fundamental fortitude and most valuable resources of any educational system. Since they are instrumental in the transmission of knowledge and expertise, they are regarded as the foundation of the educational process. Faculty and instructors are identified and acknowledged by "National Education Policy" 2020 as the epicentre of the learning process. The policy, as envisioned by the Honourable Prime Minister, will provide numerous reforms pertaining to recruitment, ongoing professional development, working conditions, and more that will empower teachers in India. In addition, NEP 2020 acknowledges that trainers will need pedagogical and high-quality content development in order to meet the demands of education in the twenty-first century.

(Sarta, 2022) The NEP is first policy on education of the twenty-first century. Amid the COVID-19 pandemic, the sole positive development in the realm of education in the India was the implementation of this policy, which holds the potential to revolutionise the country's education system. As the adage goes, law of nature changes, but this modification had been imminent for over three-half decades. The last time a comparable transformation occurred in field of education was in 1986. In this dynamic world, it is critical for the survival of anything to be able to adapt to the ever-changing situation. The same holds true for education; as information and communication technologies (ICT) evolve and industrial demands change, the way we learn must also evolve.

(Lewis, 2022) Globalisation affects a significant portion of the globe. It has imprinted its imprint on all domains of existence. The advancement of globalisation has been unequal across various domains of human knowledge. Certain domains have witnessed tremendous progress as a result of globalisation, including trade and commerce, technology, athletics, and art, as well as education. Globalisation has made substantial strides in these areas as well. Education plays a pivotal role in mitigating the consequences of worldwide megatrends. The endeavour to align education with worldwide benchmarks has a long history and has witnessed remarkable advancements in recent decades, exemplified by the high school International Baccalaureate programme. This programme has experienced a surge in worldwide popularity and demand among educators and students.

(Malla Avila, 2022) The New Education Policy, 2020 was implemented with the aim of transforming India's antiquated education system into a contemporary, multidisciplinary framework. The Indian cabinet granted its approval in July 2020. The present study is exploratory in character, and data has been gathered from a variety of secondary sources. The paper examines the National Education Policy 2020's characteristics, including its main focal areas, innovative approaches, drawbacks, and challenges. Moreover, it has been determined that while NEP 2020 offers a paradigm-shifting agenda to revolutionise education in India, its effectiveness will solely be gauged by how it is executed. This policy, when properly executed, possesses the potential to transform India into a prominent international centre for education by the year 2030.

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(Manasi Bera¹, 2023) The present study examines how the National Education Policy of India has affected the internationalisation of higher education. This article critically analyses the NEP's framework, methods, and strategy for promoting internationalisation. It offers astute observations on the program's merits, drawbacks, and possible ramifications for initiatives in higher education in India. Methodology: This examination employs a comprehensive investigation approach, which necessitates an exhaustive review of the relevant literature and NEP documentation. The report conducts a systematic analysis of the NEP's fundamental regulations, principles, and methods of internationalisation, and assesses their potential ramifications for higher education within India.

(Khare & Goel, 2023) Comprehensive in nature, "National Education Policy" (NEP) 2020 seeks to revolutionise the higher education system. The purpose of this research is to examine the effects of NEP 2020 upon higher education in India by conducting a comparative analysis of a subset of academic establishments both prior to and subsequent to the policy's execution. Both qualitative & quantitative methods of research will be utilised to collect data from administrators, students, and educators for the study. The study's results will offer valuable perspectives on the evolution of the higher education industry, encompassing curricular restructuring, pedagogical methodologies, and institutional administration. The outcomes will provide policymakers and stakeholders with valuable insights regarding the efficacy of the NEP 2020 and identify areas that necessitate enhancement.

(Manasi Bera¹, 2023) Following in the footsteps of previous administrations' education policies of 1968 and 1986, the Bhartiya Janata Party (BJP) government's New Education Policy 2020 seems to be an ambitious effort to reform India's higher education system. Similar to the states of Madhya Pradesh, Karnataka, as well as Uttar Pradesh, specific administrations have initiated the procedure of integrating the policy into the higher education systems of their universities, thereby establishing a precedent. A number of states, such as Kerala, Tamil Nadu, and West Bengal, are exhibiting resistance. A similar transition last transpired in 1986 within the realm of education. To succeed in this ever-changing world, everything must be adaptable to the circumstances. The same holds true for education; as information and communication technologies (ICT) and industry demands continue to advance, so too must our approach to learning.

(Pahlada G, 2024) The Government of India unveiled the New Education Policy in 2020, which was well received by all segments of society. The education policy underwent a significant transformation after 1986. Because of this, the government's decision was regarded by all as a positive and tranquil step that merely signifies a significant shift in field of education, while also being deemed suitable for addressing the challenges posed by the current global education system. The evolution of education system has been planned for quite some time and has not occurred overnight. This research conducts an overview of NEPs and evaluates their impact on the current education system within the context of the global arena. The objective of a high-caliber higher education ought to be to cultivate individuals who are both thoughtful and adaptable. Additionally, engaging in in-depth study of one or more specific subjects aids in the development of moral character, rational thinking, intellectual curiosity, creativity, and foundational principles.

(G. Kumar & Neeraj, 2024) A broad plan for transforming India's education system from early childhood education and care to higher education, the National Education Policy (NEP) 2020 serves as the foundation for this endeavour. By ensuring that all learners have equal access to high-quality education, encouraging innovation and creativity, promoting multilingualism as well as cultural diversity, and guaranteeing the holistic development of both individuals and society as a whole, the policy seeks to transform India into a global knowledge superpower.

(Vulic, 2016) Integration of societies and economies via cross-border transfers of capital, finance, information, ideas, technologies, products, services, and personnel is what is meant by the term "globalisation." The economic reforms implemented in 1991 under P. V. Narasimha government marked the beginning of the globalisation process in India. Their objective was to integrate the Indian economy with the global economy. The forefront is education in the context of globalisation, and at least two perspectives exist regarding its effects on education. The initial inquiry concerns the degree to which globalisation is influencing education systems and, more specifically, what changes are anticipated to occur in education systems over the next few decades as a consequence of globalisation. The second question is what policy reforms ought to be implemented in order to mitigate the repercussions of globalisation. This paper will examine the significance, diverse facets, and positive and negative effects of globalisation on education.

3 Conclusion

The globalization-induced effects of the New Education Policy 2020 may result in substantial alterations to the higher education system. While a comprehensive depiction of globalization's effects on higher education curricula may be unattainable, this paper will address the following globalisation matters: Curriculum, pedagogy, language, international collaboration, and internationalisation are critical domains that possess both direct and indirect ramifications for educational practices. These implications should not be disregarded, as the expansion of such practices presents obstacles that must be confronted in order to maximise their advantages.

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Multicultural Education: Addressing Diversity in the Classroom

Dr. Jyoti Uikey^{1*}

¹Asst. Professor, Department of Zoology, Sarojini Naidu Govt Girls Pg Autonomous college Bhopal (M. P). .

Abstract

In order to integrate local languages into early learning stages while preserving rich cultural and traditional values, the National Education Policy 2020 (NEP-2020) has outlined a multitude of recommendations for the promotion as well as preservation of Indian languages. To achieve this, the paper emphasises the NEP-2020 objectives, which are intended to enhance understanding of the organization's contribution to the promotion of Indian languages and multicultural education. Multicultural education is both a concept and a reform movement. Its primary objective is to alter the framework of educational establishments in order to provide equitable academic opportunities for all students, including those who are exceptional, male, female, of different racial, ethnic, linguistic, and cultural backgrounds, and those who are exceptional.

Keywords: Multicultural education, NEP 2020, Methods, Multidisciplinary Approaches

1 Introduction

Multiculturalism is diversity of culture. The objective of multiculturalism is to ensure that all cultures are accorded constitutional equality and respect. It is unacceptable for any one culture to gain cultural dominance over others in a country to the detriment of another. The ideology of a nation's educated class determines the future of that nation; therefore, education system of that nation influences that nation's culture. As education serves as a vehicle for the development, maintenance, and transmission of culture, it is crucial to incorporate multiculturalism into the curriculum of a secular nation such as India, which has embraced secularism and multiculturalism. India is characterised by its diverse religious, linguistic,

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cultural, and societal values. Culture in India has been shaped by adherents of numerous faiths. As the distance between nations and their inhabitants has shrunk, the world has evolved into a global village. The Constitution of India's status as a fundamental cultural document is inconsequential. (Dasharath Dunghav, 2021)

Definitions of multiculturalism

“Successful multiculturalism builds the bonds of community that lead to interracial, interethnic friendships.”

— **Diane Ravitch**

“Multiculturalism is a term that has come to serve as shorthand for a host of different and not necessarily related cultural and educational issues. Arguments relating to gender studies, ethnic and racial studies, affirmative action, freedom of speech on campus, compromise and corruption among educational administrators have all been aired under the title, multiculturalism.”

— **A. E. Barnes**

Objectives of Multidisciplinary Approach:

1. To incorporate STEM into the arts stream.
2. In order to integrate the disciplines of Science, Technology, Engineering, and Mathematics with the humanities, language, arts, drama, dance, and music.
3. To augment the overall pleasure and welfare of students.
4. In order to enhance the problem-solving abilities of students.
5. To foster the development of critical reasoning in students.
6. To foster the development of virtues such as tenacity, accountability, and civic engagement, which will ultimately bring about their lifelong prosperity.
7. To cultivate comprehension for the logical application of science and technology.
8. Encourage students to develop a sense of moral and ethical responsibility grounded in their personal values.
9. In order to empower the students to apply the principles of equity, wisdom, and constructiveness to their individual actions.
10. To expand the learner's visual horizons, thus encouraging inquisitiveness and discourse.
11. Instructing the students on how to coexist harmoniously, responsibly, and creatively in society.
12. Inspire the students to assume the role of catalysts for societal improvement.

Importance of Multiculturalism in Education

Identifications of the culture: Multicultural education not just facilitates students' acquaintance with diverse cultures but also fosters within them a disposition characterized by compassion and understanding towards the cultures of others, as well as reverence for cultures other than their own.

To create cultural Integration: Cultural integration between pupils can be achieved via the implementation of multicultural education. Additionally, cultural integration benefits the integrity of the entire nation. The Advantages and Consequences of Cultural Integration and Why It's Crucial to Society Multicultural education facilitates the acquisition of knowledge in this regard, promotes cultural integration, and assists in the development of a sense of connection to various cultures within society.

To develop responsible citizenship: Proficient and accountable populace constitute the nation's capital. Societal progress is a prerequisite for the advancement of any nation. Under such circumstances, the development of responsible citizenship via multicultural education occurs at an accelerated rate. Multicultural education is therefore critical for the development of competent citizens.

To create broad positive social approaches: Urgently required is multicultural education in order to foster a positive, all-encompassing social outlook. Multicultural education is critical to the formation of conscientious citizens via the medium of education. Social development is contingent upon the cultivation of social consciousness; therefore, multicultural education has the potential to instill students with an all-encompassing positive social outlook. It does, in fact, require effort.

1.1 Types of Diversity

1. Cultural Diversity

Culture is a significant contributor to diversity. Culture is an all-encompassing notion that encompasses various aspects such as worldviews, perspectives, values, ethnicity, behavioural patterns, dialects and languages, verbal and non-verbal communication techniques, and communication patterns."Cultures have shared beliefs, values, practices, definitions, and various other elements which are expressed through family socialisation, formal schooling, shared language, social roles, and standards for feeling, thinking, and acting".

As culture is a dynamic and ever-evolving concept, it is impossible to provide a singular definition. Cultural diversity is therefore the explanation for instances in which a learner's ethnicity, social class, or language deviate from the dominant culture. A rich cultural heritage endows each region in our nation with a distinct identity that is quite distinct from that of other regions or states. Traditions, observances, clothing, celebrations, and more vary by region while contributing to the formation of that region's distinct identity. A Sardar donning a turban, a Rajastani donning a Pagdi, or a Kashmiri donning a Pheran is not an uncommon sight.

2. Race

Race generally alludes to individuals who share a common ancestry. For instance, the Aryan race and the Dravidian race are discussed. The term "race" is frequently applied to physical or biological characteristics, including but not limited to facial features, hair colour, and texture. However, empirical evidence suggests that genetic variation is present exclusively within ethnic groups and not between them. Consequently, disparities among races in domains such as intelligence or academia are not attributable to biological variations, but rather to socioeconomic, historical, and historical influences. The conceptualizations and consequences of race have evolved throughout history, in response to the impact of prevalent legislation and policies. Racist prejudice continues to be a significant global hazard. Consistently growing demonstrations and unrest on a global scale serve as evidence of the pervasiveness of prejudice against people of colour.

3. Ethnicity

Ethnicity is a social construct that pertains to an individual's heritage, ancestry, or association with a particular cultural collective (Pinderhughes, 1989). It is a fallacy to conflate ethnicity and nationality interchangeably. In contrast to nationality, which pertains to an individual's status as a citizen or born member of a particular nation (e.g., a person residing in the United States who was born in India retains Indian nationality due to birthplace), ethnicity encompasses elements of personal culture, including linguistic practices, customs, and social connections. In the same way that race presupposes the existence of common biological or inherited characteristics, ethnicity carries implications of shared cultural characteristics.

4. Gender

How individuals are categorised as male or female and the societal expectations and definitions of those terms constitute gender as a social construct. A tendency exists to conflate gender and biology. Strictly as opposed to being a social construct, gender is a biological descriptor established through the examination of internal and external reproductive organs and chromosomes. Gender is primarily influenced by the societal perspective that individuals hold regarding their own sex.

5. Social Class

It is a prevalent phenomenon in our society that individuals from higher socioeconomic classes are more likely to gain admission to prestigious educational institutions and institutes compared to those from lower socioeconomic backgrounds. Due to their higher revenues and affiliation with affluent families, they are able to avail themselves of more substantial educational benefits, including private instruction and coaching.

This is owing to the diversification of social classes. Social class comprises an individual's educational attainment, occupational standing, income or just material wealth, and is a social construct. It can be delineated by the degree of social standing that its constituents possess in comparison to individuals belonging to alternative social classes. An individual is categorised into a stratified hierarchy according

to their social network, wealth, income, education, and occupation. Additionally, it can affect how members of that class feel, behave, and blend in. The progressive widening of the social class divide has been a growing factor in the diversity of our society.

6. Disability

Disabilities are conditions, whether apparent or concealed, transient or permanent, that impede or confront individuals across all age groups and social strata. Disability encompasses a wide range of classifications, including physical, intellectual, mental, and sensory impairments. The term "it" is an umbrella that encompasses limitations on activity, participation, and impairment. A problem with the structure or function of the body constitutes an impairment; sensory impairments include visual and auditory impairments. For instance, a child who has a hearing impairment will be incapable of perceiving sounds. Similarly, activity limitation refers to a situation in which a child encounters challenges in performing a particular task or action. A child who has contracted polio may encounter challenges in ambulation and running compared to their peers. Conversely, a participation restriction pertains to an obstacle an individual faces when attempting to engage in various aspects of life, including employment, social interactions, and recreational pursuits.

1.2 Strategies for Addressing Diversity in Classroom

The intricate nature of managing such disparate and heterogeneous classrooms presents a formidable obstacle for educators. Rather than merely recognising and/or accepting variations, it is critical to establish constructive educational settings and pedagogical approaches that facilitate the optimal development of every student.

Strategies for addressing diversity in the classroom include:

1. Recognizing the increasing Diversity of classrooms

It is necessary to acknowledge the altering social composition of students in the classroom as a consequence of the growing diversity within the student body. Furthermore, it necessitates the redesign of instructional materials, assessment methods, curricula, and teaching-learning processes and procedures in order to accommodate the varying learning requirements of children hailing from diverse backgrounds.

2. Differentiated Instruction

Differentiated instruction pertains to strategies in which distinct students are offered individualised learning paths, catering to their individual needs in terms of acquiring knowledge, developing skills, digesting information, or comprehending concepts. It entails determining the perceptual strengths of each pupil and adapting instruction accordingly. Disseminated instruction has a direct influence on cognitive abilities, social skills, and positive work habits, among others. Students will experience increased engagement and interest in the subject matter if instruction is tailored to their individual strengths and interests. By implementing this strategy, instructors optimise the learning experience for every student

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in classroom by proactively adjusting the curriculum, instructional approaches, materials, assignments, and assessments to suit the unique requirements of specific pupils and small cohorts.

3. Interactive pedagogy

In lieu of a transmission mode, pedagogy ought to adopt a participatory mode that is more affirming. This would afford an opportunity for the instructor and the pupils to engage in conversation. Teachers can also assist pupils in perceiving learning assignments as purposeful. Teachers may, rather than regarding pupils as "others," forge a connection with them.

4. Scaffolding

Through the utilisation of "scaffolding," educators are able to connect cultural resources that students bring to the classroom with the academically rigorous curriculum. By scaffolding, the instructor divides the material or subject matter into manageable portions or compact units and accompanies each portion with a resource or framework.

5. Cooperative collaborative learning

Collaborative cooperative learning is an extremely well-liked and economical method. Promoting interdependence and collaboration among students while emphasising the significance of individual accountability is the underlying concept. It appears that these practices positively impact student learning. The widely adopted project-based learning approach in higher education institutions is founded upon the cooperative learning principle. Cooperative learning strategies afford learners crucial opportunities for purposeful, engaging, and meaningful interaction. Teamwork can assist pupils in developing their self-esteem. Additionally, it aids in the development of both academic and non-academic abilities.

6. Holistic approach

Considering the domains of cognition, emotion, and movement, integrated holistic approaches might be preferred over memorization and tedious practice in order to make learning more engaging and beneficial.

7. Teacher Capacity Building

Trainers and educators are influential agents of change in the fight for classroom equity. They must possess the requisite knowledge, abilities, attitudes, and values to accomplish this. Additionally, they must operate under the necessary influence of motivation and dedication.

1.3 Multicultural Curriculum Teaching Methods

1. Project method

The project method proves to be highly advantageous in ensuring the effective execution of multicultural curriculum. Students' multiculturalism can potentially be fostered via the implementation of the project method. Information gathering on a variety of cultural aspects, social issues, and environmental concerns

are just a few of the initiatives that can be initiated. Students can complete countless assignments of this nature in this manner.

2. Problem solving method

In an environment rife with bad practices and traditions, the instructor should assign problem-solving projects to students with the objective of identifying the correct resolution amidst the myriad of such practices, traditions, and bad practices that exist in every culture. As an illustration, the Honda method proposes viable resolutions to the issue at hand, namely identify the underlying factors contributing to water scarcity and propose a solution strategy. Thus, the approach to problem-solving can be effectively implemented.

3. Seminar method

Seminar-based instruction permits the facilitation of in-depth discussions on a wide range of sociocultural issues. Seminars on a variety of cultural characteristics and diversity can be conducted using this method of instruction. This contributes to the development of a sense of community among pupils of various cultures. Seminar instruction is highly effective within multicultural education due to its emphasis on group discussion and expert opinion on social issues.

4. Debating method

Students have the opportunity to engage in debates concerning a wide range of cultural matters, with the aim of fostering cultural tolerance and facilitating cultural integration. The teaching methodology effectively imparts cultural knowledge, fosters cultural proficiency, and promotes cultural brotherhood among the students.

1.4 Pitfalls in Multicultural Education

1. Lack of multicultural teaching strategies

In order to foster a multicultural mindset among students, instructors must implement a multicultural teaching strategy; however, the multicultural education work policy is not consistently adhered to by the majority of educators. Although the implementation of holistic teaching methods by educators can pique students' interest in learning, it seems that the majority of instructors are not doing so. This lack of implementation hinders the development of a multicultural approach among the students.

2. Lack of cultural awareness

The absence of cultural cognizance among pupils presents numerous challenges in fostering mutual cultural tolerance. Culture cannot be preserved, nurtured, or transmitted in the absence of cultural consciousness. The cultivation of a multicultural ideology among students and society at large has become a formidable task owing to the prevalent dearth of multicultural consciousness.

3. Cultural conflicts

A cultural dispute is an established dispute. Cultural conflict engenders animosity towards one another's respective cultures. Concurrently, it strives for minority culture dominance over majority culture. As a consequence, cultural conflict has presented cultural education and multicultural curricula with an enormous obstacle.

4. Prejudiced attitude

Prejudicial thinking engenders adverse attitudes among distinct groups, thereby giving rise to cultural disparities. This phenomenon fosters cultural and social tensions, disrupts social harmony, and exacerbates feelings of superiority. As a result, prejudiced attitudes constitute a significant barrier to multicultural education.

2 Literature Review

(Lomotey, 2012) Culture-based education is an instructional and learning methodology that organises the learning process around the learner's cultural environment, taking into consideration the prevailing social values, norms, beliefs, and practices. Determining the various facets of culture-based education is the objective of this conceptual paper. As a means of fostering academic achievement and bolstering student engagement, culture-based education has had a profound impact on students, shaping their identities and improving their spiritual, physical, intellectual, and emotional well-being. This article examines the conceptual components and advantages of culture-based education. This paper additionally investigates the educator's responsibility in advancing culture-based education as well as the prevalent practices in India pertaining to culturally-based education.

(Parker, 2019) In this paper, we'll look at how Multicultural Education may be a useful framework for higher education classrooms. Across all academic disciplines, English Language Learners within the United States are the primary focus. An examination of the five facets of "Critical Multicultural Education" is provided, accompanied by additional commentary on crucial areas of emphasis that should facilitate a more comprehensive comprehension of the course material and among native-born and English Language Learners students.

(Sharma, 2020) The National Education Policy (NEP) 2020 is an endeavour to revolutionise the educational landscape of India by reorienting the teaching and learning process to prioritise the acquisition of skills, critical thinking, and holistic development. This extensive research examines the diverse effects of NEP 2020 across multiple facets of education. By employing a mixed-methods strategy that includes an examination of academic research, literature reviews, surveys, case studies, as well as pedagogical approaches, this study investigates modifications in curriculum development, assessment procedures, and the educational experience as a whole.

(Borah & Debnath, 2021) In addition to providing education facilities, individuals are expected to abstain from any form of discrimination predicated on gender or sex. Education for all must be our fundamental obligation as a developing nation. We shall not succeed as a developing nation if our education system

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continues to be inaccessible to every citizen in every region. Presently, inclusive education is a necessity rather than a benefit. As a developing nation, education is of the utmost importance for India's development. The recommendations pertaining to comprehensive education, as outlined in the National Education Policy 2020, have been examined in this chapter of the book. The Union Cabinet of India approved National Education Policy 2020 on July 29, 2020. The National Education Policy 2020 (NEP 2020) supersedes the National Policy on Education, which was established in 1986.

(DasharathDunghav, 2021) Multiculturalism is diversity of culture. The objective of multiculturalism is to ensure that all cultures are accorded constitutional equality and respect. It is unacceptable for any one culture to gain cultural dominance over others in a country to the detriment of another. The ideology of a nation's educated class determines the future of that nation; therefore, education system of that nation influences that nation's culture. As education serves as a vehicle for the development, maintenance, and transmission of culture, it is crucial to incorporate multiculturalism into the curriculum of a secular nation such as India, which has embraced secularism and multiculturalism. India is characterised by its diverse religious, linguistic, cultural, and societal values.

(Environment & Classroom, 2021) Given the dynamic nature of the global landscape, it is crucial to provide students with sufficient opportunities to develop into the citizens of future. The acceptance and understanding of diverse cultures are fundamental requirements for individuals. A cultural programme comprises knowledge, concepts, and values that are collectively communicated by the members of a group. Additionally, culture comprises shared beliefs, symbols, and interpretations that occur within a human group. Multi-cultural education is both an ideology and a reform movement, with the primary objective of reorganising educational institutions to ensure that all students, including those who are exceptional, male and female, of diverse rational, ethnic, linguistic, and cultural backgrounds, have an equitable opportunity to succeed academically.

(Nagpal, 2023) India has recently implemented the "National Education Policy 2020" (NEP 2020) in an effort to reform the education system and promote a holistic, multidisciplinary, and inclusive learning environment. The NEP 2020 is an all-encompassing policy document that examines every aspect of education, including postsecondary education and care for young children. A lack of qualified educators, outdated facilities, insufficient financing, and opposition to change are only a few of the obstacles that have slowed down the NEP 2020's implementation in school instruction, despite its admirable intentions. The objective of this scholarly article is to examine the obstacles and possible remedies associated with the implementation of NEP 2020 in Indian schools. The paper emphasises, among other things, the significance of adequate funding, effective stakeholder engagement, and teacher capacity development by conducting a review of the relevant literature.

(A. A. Mandal, 2023) A landmark document, "National Education Policy" (NEP) 2020 delineates the overarching vision and trajectory of education in India for the foreseeable future. This scholarly article conducts a critical analysis of the NEP 2020, identifying the obstacles that must be surmounted to ensure its successful execution and assessing its ramifications. The paper evaluates the prospective impact of the NEP 2020's main provisions, which include modifications to curriculum, pedagogy, assessment, as

well as governance, on the education system. Moreover, the paper examines the potential benefits and obstacles that may arise from the policy's focus on comprehensive and interdisciplinary learning, technological advancements, and inclusiveness. The results of this study make a significant contribution to the ongoing scholarly conversation regarding educational reforms by offering policymakers, educators, as well as stakeholders engaged in the NEP 2020 implementation process valuable insights.

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(Abrol, 2023) Education is the foundation of all nations' advancement. A progressive education policy, which is not only well-defined but also meticulously planned, is an absolute necessity for the advancement of every nation. With diverse cultural and traditional backgrounds in mind, numerous nations have implemented unique educational systems. The Union Cabinet System granted approval to National Education Policy (NEP) on July 28, 2020. After 34 years, the Indian government received feedback from over 50 seminars and 2.5 lakh village-level stakeholders represented on two national parliamentary committees.

(Acharya, 2023) Education, and specifically school education, is of paramount importance in fostering a child's cognitive and holistic development. The language utilised as an instructional medium serves as a tool for the comprehensive growth and development of child. Due to multilingual nature of Indian society, it is challenging to select a specific language for this reason in the context of India. Multilingualism constitutes a significant facet of our multicultural society. The nation is home to hundreds of languages, 22 of which are constitutionally recognised. The K Kasturirangan Committee's National Education Policy of India 2020 appears to have given careful and practical consideration to these matters, as it introduces innovative concepts pertaining to language instruction.

(R. Mandal & Mete, 2023) Language constitutes an exclusively human capability. It functions as a conduit via which we acquire education and knowledge. It assists us in communicating our thoughts and opinions to others. Additionally, language contributes to the preservation of Indian culture and tradition, since people have transmitted their values as well as rituals orally and in writing since antiquity. India, being a multicultural nation, is home to a vast array of individuals who speak various languages and dialects. In addition, the 8th Schedule of Constitution designated 22 languages as official Indian languages. A multitude of suggestions were outlined in NEP-2020 with regard to the advancement and conservation of Indian languages.

(Islam & Ghosh, 2024) This research investigates the fundamental tenets, approaches to execution, obstacles, and prospects associated with inclusive education, focusing specifically on observations made from India's National Education Policy 2020. NEP-2020's reforming the educational agenda is predicated on inclusive education, which is founded upon the basic premise of ensuring that all individuals, irrespective of their origin or abilities, have equitable access to high-quality education. The article provides a comprehensive analysis of the position taken by NEP-2020 regarding inclusive education, detailing its fundamental principles, policy structures, and approaches to execution. By utilising theoretical frameworks, empirical research, policy documents, and scholastic articles as sources, this article evaluates the various complex aspects of inclusive education and its importance in promoting a learning environment that is fair, empowering, and equitable.

(Srivastava et al., 2024) Despite its transformative nature, National Education Policy (2020) has endeavoured to restructure the education system of our nation by addressing all facets of teaching and learning at every level. The strategy has proposed a number of steps to encourage a multilingual approach to education, in which students study not just foreign languages but also their mother tongue or a local/home/regional language alongside their academic studies. "National Education Policy" 2020 (NEP-2020) has outlined a multitude of suggestions for the advancement and safeguarding of Indian languages, with the dual objective of integrating indigenous languages into early learning stages and preserving the nation's cultural and traditional heritage.

3 Conclusion

A multicultural curriculum is essential in a secular nation such as India to promote cultural harmony, benevolence, preservation, development, and transition. This paper explores how multidisciplinary education within the framework of NEP enables students to improve their language proficiency, mother tongue utilisation, and classroom diversity by integrating the expertise of one discipline with that of other fields. By adopting this methodology, not only does it enrich the academic journey for every pupil, but it also equips them with the necessary skills to act as considerate, culturally aware, and respectful global citizens in the era of greater interconnectivity.

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Early Childhood Education: Trends and Challenges in Global Context

Dr. Bhavna Ramaiya^{1*}

¹Asst. Professor, Department of Human Development, Sarojini Naidu Govt Girls Pg Autonomous college Bhopal (M. P).

Abstract

Addressing ECCE, this paper examines the challenges and opportunities associated with the implementation of "National Education Policy" 2020. "Early Childhood Care and Education" (ECCE) is defined by the National Education Policy (NEP) 2020 as an essential cornerstone for lifelong learning. It emphasizes the necessity of providing quality early childhood care and education (ECCE) that incorporates play-based education and holistic development to all individuals. NEP 2020 seeks to improve the quality of early childhood care and education (ECCE) programs in order to facilitate a smooth transition for young learners to formal instruction and promote their cognitive, emotional, as well as social development.

Keywords: ECCE, NEP 2020, Trends, Challenges, Education.

1 Introduction

Given the accelerated rate of development that takes place during the first 6 years of existence, this period is vital for an individual's progress. The significance of early years in brain development is illuminated by research conducted on a global scale. The establishment of an empowering and intellectually engaging setting during the formative years of early childhood education (ECCE) is advantageous for the long-term growth and education of children. While the initial two and a half to three years of a child's life may not invariably require formal education, the nurturing role of parents is vital in establishing a dynamic learning environment. The Ministry of Education unveiled the new "National Education Policy" in July 2020, which stipulates that ECCE is integrated into the curriculum beginning at age 3. The regulation

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Dr. Bhavna Ramaiya

stipulates that "Universal provisioning of high-quality early childhood development, care, as well as education must thus be accomplished as quickly as possible, and no later than 2030"(Abhishek Vadeyar, 2022)

1.1 Early Childhood Care and Education in National Education Policy-2020

In order to transform India into a vibrant and equitable knowledge society in a sustainable manner, National Education Policy aims to establish an education system that is deeply ingrained in Indian culture and propels the country towards becoming a global knowledge superpower. Until Class 1 commences at age 6, children between the ages of three and six are not presently enrolled in the 10+2 framework. The novel 5+3+3+4 framework incorporates an "early childhood care and education" (ECCE) foundation that commences at the age of three. Its overarching objective is to foster enhanced holistic learning, development, and well-being.

Prior to the age of six, a child experiences cerebral development that exceeds 85 percent on average. Consequently, to ensure optimal brain development and growth, it is critical to provide appropriate brain stimulation and care during early childhood. At present, a significant number of young children, particularly those hailing from socioeconomically disadvantaged backgrounds, are deprived of the opportunity to receive high-quality early childhood education. Substantial allocations towards early childhood education possess the capacity to ensure that every young child has the opportunity to partake and develop within the educational system for the duration of their lives. Hence, in order to guarantee equitable access to high-quality early childhood education, care, and development, and to ensure that all first-grade students are prepared for academic life, this objective should be realized by 2030 at the latest.

The ideal early childhood care and education (ECCE) curriculum is versatile, multi-level, inquiry-based, play-based, and activity-based. It encompasses a wide range of subjects, including alphabets, languages, numbers, tally up, colors, shapes, puzzles, logical reasoning, problem-solving, drawing, painting, and more visual arts, crafts, drama, puppetry, music, and movement. In addition, it emphasizes the development of sensitivity, social skills, good decorum, courtesy, ethics, public and private order, collaboration, and cooperation. Social-emotional and ethical development, both physical and motor development, mental growth, cultural and artistic development, and the enhancement of early language, literacy, and numeracy abilities are all aspects of early childhood care and education (ECCE) that strive for optimal outcomes.

NCERT has devised the "National Curriculum and Educational Framework for Early Childhood Care and Education" (NCPFECCE) in two sections, catering to children aged up to eight. Years of adherence to the aforementioned principles, the most recent investigations in the field of early childhood education, and understood national and global benchmarks. The ECCE effectively incorporates India's abundant indigenous customs, encompassing artistic expressions, narratives, poetic expressions, musical performances, and more, that have developed over millennia. This framework functions as a reference for early childhood education and care providers as well as parents.

The overarching goal will be to ensure that all citizens of the nation gradually gain access to high-quality

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ECCEs. Specifically targeted and prioritized initiatives will be implemented in socioeconomically disadvantaged neighborhoods and locations. Early childhood care and education (ECCE) is delivered via an extensively refined and augmented network of establishments. This network comprises the following: (a) autonomous crèches; (b) Anganwadis operating in conjunction with primary schools (c) kindergartens or departments catering to children aged 5 to 6 in conjunction with established primary schools as well as (d) independent crèches staffed by personnel or instructors who have received specialized training in the ECCE curriculum and pedagogy.

To ensure that ECCE is utilized universally, Anganwadi centers will be fortified with high-quality infrastructure, play apparatus, and well-trained Anganwadi workers/teachers. Each Anganwadi is housed in a meticulously constructed, exceptionally ventilated, and child-friendly structure that fosters an intellectually stimulating atmosphere. To ensure a seamless transition via Anganwadi centres to primary schools, children residing in these centers are obligated to participate in activity excursions and engage in interactions with instructors and students from nearby primary schools. Anganwadis children, parents, and instructors are extended invitations to partake in programs organized by school complexes/clusters, with reciprocal engagement occurring between the two groups.

Every child prior to the age of five is scheduled to attend a "preparatory class" or "Balavatika" (i.e., prior to Year 1) taught by an ECCE-certified instructor. The preparatory class ought to predominantly employ play-based learning strategies to facilitate the development of early literacy and numeracy skills, in addition to cognitive, affective, and psychomotor abilities. The Eight-Day Fasting Provision of the "Central National Education Policy" 2020 is expanded to include primary school preparatory classes as well. Health screenings and growth surveillance, which are currently provided through the Anganwadi system, ought to be extended to Preparatory and Anganwadi pupils as well.

In order to properly equip the Anganwadi with its first cohort of high-caliber ECCE instructors, the current Anganwadi staff and teachers will undergo a methodical training program in accordance with the NCERT-designed curriculum and pedagogical framework. A one-year degree program will be offered to Anganwadi workers/teachers who have completed a minimum of 10 2 credits in ECCEs. Those with lower credentials will be enrolled in a certificate program for six months, which will cover critical aspects of ECCE such as early literacy and numeracy. By operating these programs remotely via smartphones and DTH channels, educators are able to obtain ECCE credentials without having to interrupt their current duties. The "Cluster Resource Centers" of the Department of School Education offer ECCE training for Anganwadi workers and teachers. As part of their ongoing evaluation, these centers organize a minimum of one contact hour per month. Using career mapping, mentorship programs, and on-stage vocational training, state governments are laying the groundwork for a future generation of highly trained teachers to focus on preschool and kindergarten. Additionally, facilities required for the ongoing professional development (CPD) and initial professional training of these trainers will be established.

1.2 Importance of Ecce in Nep-2020

For a variety of factors, "Early Childhood Care and Education" (ECCE) is an integral component of the National Education Policy (NEP) 2020. ECCE serves as a fundamental cornerstone for the holistic development of a child, encompassing cognitive, social, emotional, as well as physical domains. It serves as the foundation for subsequent academic achievement and success. In context of NEP-2020, ECCE's recognition as an essential component of the education system, with the objective of ensuring a solid foundation for children between the ages of three and six, emphasizes its significance. The significance of this recognition stems from the following factors:

1. **Holistic Development:** ECCE places emphasis on comprehensive development, encompassing not only scholastic aptitudes but also psychological and social welfare. This is consistent with NEP's emphasis on a holistic and multidisciplinary approach to education.
2. **Foundational Learning:** It is essential to set the groundwork for subsequent learning during the formative years. By fostering the development of critical cognitive and linguistic abilities, ECCE paves the way for a prosperous formal education.
3. **Inclusivity:** ECCE makes sure all children, regardless of their origin, have access to high-quality early education, thereby diminishing disparities from the outset, in line with the NEP-2020's emphasis on inclusiveness.
4. **Parental Engagement:** The policy acknowledges the significance of parental participation in the educational process. Promoting parental involvement, ECCE cultivates a synergistic atmosphere between educators and parents with the aim of advancing the child's welfare.
5. **Teacher Training:** The importance of teacher education and professional growth is emphasized in NEP-2020. Within the realm of Early Childhood Care and Education (ECCE), the presence of adequately trained educators is critical in order to deliver high-quality early education and cultivate a constructive atmosphere for learning.
6. **Transition to Formal Education:** By bridging the gap between the home and formal education, ECCE facilitates transition for children. This is consistent with the NEP's objective of accelerating and streamlining education.
7. **Cognitive and Emotional Skills:** The early years of infancy are crucial for the formation of both cognitive and affective abilities. ECCE places emphasis on fostering these facets, thereby making a valuable contribution to a child's holistic development.

1.3 Early Childhood Care & Education (ECCE) Four Main Areas

Foundational Learning Curriculum: The curriculum for students aged 3 to 8 is divided into two sections: courses I and II for primary-school students aged 6 to 8, and the fundamental learning curriculum for ECCE students aged 3 to 6.

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Universal Access: ECCE that is free, secure, and of high quality is available to all children aged 3 to 6 at pre-schools, Anganwadi's, and Balearicas.

Preparatory Class: Prior to entering Class 1, all children will be transferred to a "Calvatia" or "Preparatory Class" (preceding Class 1), where play-based learning will be facilitated by educators who are qualified in Early Childhood Care and Education (ECCE).

Multi-faceted Learning: A flexible instructional approach that prioritizes inquiry-based learning, play, and activity as means to develop foundational literacy and numeracy skills.

The Ministry of Human Resource Development (HRD), Women and Child Development (WCD), "Health and Family Welfare" (HFW), as well as Tribal Affairs will work in tandem to develop and execute ECCE in a phased manner, in accordance with the National Education Policy 2020. A system of institutions that is both extremely robust and substantially expanded will be utilized to provide ECCE, comprising:

- Self-contained Pre-schools and Anganwadis that feature exceptional facilities, educational materials, and a stimulating atmosphere
- Co-located anganwadis and primary institutions
- Co-located pre-primary schools or sections that accommodate children aged 5-6 years alongside existing primary schools.

Additionally, National Education Policy 2020 stresses the importance of giving districts and regions that are socioeconomically disadvantaged considerable priority and consideration. Furthermore, it is highly recommended that ECCE be progressively implemented in Ashrams Halas situated in tribally dominant regions.

1.4 Trends in Early Childhood Education (ECE)

- 1. Holistic Development Focus:** NEP 2020 places significant emphasis on the integration of physical, cognitive, socio-emotional, as well as ethical development within the framework of early childhood education. This is consistent with worldwide patterns that prioritize the holistic growth of children over the acquisition of merely academic competencies.
- 2. Play-based and Activity-based Learning:** Consistent with international standards of excellence, the policy promotes an instructional approach that emphasizes action and play. This methodology facilitates the organic cognitive development of young children as well as cultivates their inquisitiveness, imagination, and evaluation skills.
- 3. Universal Access to ECCE:** By 2030, NEP 2020 seeks to guarantee that every child aged 3 to 6 will have the opportunity to attend high-quality early childhood education. This is consistent with global initiatives, including "Sustainable Development Goal 4" of the United Nations, which aims to ensure an equitable and inclusive quality of education for all individuals.

4. **Integration of ECCE with Formal Schooling:** The policy proposes the integration of early childhood education into the formal education system. This exemplifies a worldwide tendency to establish smooth progressions from early childhood environments to primary education in order to guarantee uninterrupted learning.
5. **Parental and Community Engagement:** The significance of engaging parents and community in educational process is emphasized by NEP 2020. This approach acknowledges the prominent influence that family and community have on the development of a child; this is a widely recognized and advocated practice on an international level.

1.5 Challenges in Early Childhood Education (ECE)

1. **Quality and Standardization:** NEP 2020 stresses that assuring the quality and uniformity of ECCE programs is a significant global challenge. Diverse resources, curriculum, and teaching standards may contribute to discrepancies in quality of education that children receive.
2. **Training and Professional Development:** For early childhood education to be effective, instructors must be well-trained. As in numerous nations, NEP 2020 recognizes that ECCE instructors face a prevalent obstacle in the form of inadequate training and ongoing professional development.
3. **Infrastructure and Resources:** Effective ECCE requires sufficient learning materials and infrastructure. NEP 2020 emphasizes the necessity of allocating resources and capital towards infrastructure development, thereby addressing a worldwide concern wherein numerous early childhood programs function with inadequate facilities and materials.
4. **Funding and Investment:** Obtaining sufficient funding for ECCE presents a formidable obstacle. NEP 2020 advocates for heightened public funding in early childhood education, a matter of global significance given the considerable financial challenges faced by numerous nations in allocating adequate resources to this fundamental phase of learning.
5. **Inclusivity and Accessibility:** A persistent challenge is ensuring accessibility and inclusion for all children, even those from disadvantaged and marginalized backgrounds. NEP 2020 endeavors to tackle this issue by ensuring universal access to ECCE, thereby mirroring international initiatives to assist the most marginalized communities.

Monitoring and Evaluation: The establishment of efficient surveillance and evaluation systems for ECCE programs is critical in order to guarantee both quality and accountability. NEP 2020 emphasizes the necessity for comprehensive assessment mechanisms, a challenge that ECCE faces on a global scale in order to uphold high standards as well as continuous improvement.

2 Literature Review

(Sethi & Mahajan, 2020) Education is a highly potent tool that has the potential to revolutionize society and create opportunities for achievement across diverse fields of study. It broadens the individual's perspective on world and lays the groundwork for all of our capabilities. Education is a critical element that serves as a link between various factors contributing to the progress and advancement of a country. To concretize this notion, the Indian government has issued the "National Education Policy" (NEP) 2020. Recognizing the critical need for a new set of priorities, commitments, strategies, and finances to implement and sustain effective supports for overall growth, the objective of this paper is to highlight the gaps in the recently released NEP'2020 and to emphasize the significance of the National Early Childhood Care and Education (ECCE) as well as Early Childhood Mental Health inclusive education system in ensuring students' efficient education and well-being.

(Chetuwani Jaya, 2020) Education, being a critical investment in both human and economic progress, is susceptible to the effects of its surrounding environment. Policy responses are necessary in response to shifts in technology, labor market patterns, and the global environment as a whole. Traditions, culture, and religion all simultaneously influence and are influenced by the education system. The perpetual nature of change and continuity forces society to establish its own tempo and trajectory. Education has the capacity to instigate societal transformations through the induction of a shift in human perspective and disposition. It has the potential to alter the structure of social institutions and relationships, and thus may precipitate social change. Education for the Sustainable Development makes it possible for all individuals to attain the values, knowledge, abilities, and attitudes required to create a future that is sustainable.

(Dr.Abhaykumarsharma, 2020) Education serves as the preeminent instrument in fostering the progress of both communities and countries by means of enlightenment and empowerment. The trajectory of the nation is contingent upon the scientific as well as technological inquiry conducted within educational institutions. The future is built upon the foundation of children. Scientific evidence suggests that over 85% of child's cumulative brain development takes place prior to the age of 6, suggesting that the learning process commences in infants shortly after birth. This underscores the critical significance of early-life brain stimulation and care in fostering healthy and sustained brain development and growth. The influence of the family environment on a child's progress in learning is significant. Due to the prevalence of joint families in the past, children attended school and gained knowledge from their family members. Due to limited family sizes, children are presently unable to pursue their education in this field.

(Gandhi, 2021) NEP-2020 sought to invigorate the early childhood education and care (ECCE) program in light of the fact that 85 percent of a child's total brain development takes place before the age of six. This initiative places particular emphasis on communities from socioeconomically disadvantaged backgrounds in order to facilitate the paradigm development of every preschooler. It will enable every child to thrive in life and develop the necessary abilities to contribute more effectively in future and serve as a valuable member of society. Present-day digital India as well as Atma Nirbhar Bharat necessitate

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that every member of the populace be re-equipped with essential fundamental abilities. For example, fundamental financial transactions, Internet-based employment applications, utility bill payments, fee settlements, and retail transactions, among numerous others.

(Kamaldeep & Sarna, 2021) In the midst of significant upheaval in the education sector caused by the "Fourth Industrial Revolution" and COVID-19, the Government of India's Ministry of Education issued the National Education Policy – 2020 (NEP-2020) on July 29, 2020, with the endorsement of the Union Cabinet. The NEP-2020 outlines the overarching vision for the future education system in India, which revolves around the principles of perseverance and self-reliance. With a distinctive multidisciplinary approach and a great deal of flexibility regarding credit transfers, curriculum, skills, and access, the NEP-2020 is more student-centric. This paper examines a number of praiseworthy advantages proposed by NEP, including structured pre-schooling as well as an early start to learning, the universalization of inclusive education, and a paradigm shift from memorization to active learning. While the potential benefits of NEP-2020 are undeniable, concerns regarding its extent and practicality also arise, calling into doubt the optimism exhibited in the formulated policy.

(Sarkar, 2021) The introduction of NEP 2020 in India represents a substantial and critical departure from the preceding educational environment. Significant importance is attributed to the principles of inclusiveness and holistic development in this transition. With regard to "Early Childhood Care and Education (ECCE)" for children with disabilities, this research undertakes an exhaustive and comprehensive examination of the numerous provisions and significant consequences outlined in the "National Education Policy" (NEP) 2020. The investigation utilized in this study is based on a qualitative research design. The data were subjected to thematic analysis, and the results were interpreted in light of particular themes. The purpose of this study is to gain a comprehensive understanding of the current policies, provisions, and criticisms concerning early childhood education and care for children with disabilities in India, with a particular focus on the "National Education Policy" (NEP) of 2020. This will be achieved by conducting an extensive literature review and document analysis.

(Paras, 2022) Education is a significant factor in the development of a nation. This results in economic and social advancement and also determines the nation's and its citizens' futures. Long-lasting effects of education can be observed in the development and progress of the nation as well as its inhabitants. Education's function and significance cannot be disregarded in the current environment. The progression and maturation are evident when contrasting the period preceding independence with the one following it. The Indian government intended to alter the way we study after thirty-four years; this is third amendment to the education policy. Numerous modifications are outlined in the 2020 National Education Policy (NEP), all of which are certain to have an impact. The NEP 2020 seeks to establish India as a global knowledge superpower and to ensure that all aspirants receive a liberal education that is both multidisciplinary and interdisciplinary. Additionally, by 2035, it intends to increase the present gross enrolment ratio to 50%.

(Abhishek Vadeyar, 2022) The primary emphasis of this article is on "current trends in National Education Policy" 2020 regarding Early Childhood Care and Education, which reflect the global agenda

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for education reforms. India's 2015 adoption of the 2030 Agenda for Sustainable Development encompasses the attainment of all principal objectives, one of which is Sustainable Development Goal 4: Quality Education. This objective seeks to "ensure inclusive and equitable quality education as well as promote opportunities for lifelong learning for all" by the year 2030. This objective reflects the worldwide educational development agenda. In order to ensure a comprehensive discussion on the key targets and Sustainable Development objectives of 2030 that are specified in the National Education Policy-2020 regarding the education and care of young children in India, this is necessary.

(Mistry, 2022) In an effort to reduce illiteracy and enhance the education system in India, Union government has established numerous educational commissions and policies since the country's independence in 1947. In 1968, the initial National-Education Policy was established; it underwent revisions in 1986 and 1992. Following an absence of nearly thirty years, the Indian education system underwent a paradigm shift with the introduction of the National Education-Policy 2020. Its objective is for the Indian education system to be entirely devoted to the sustainable transformation of our nation.

(Kumar & Chander, 2023) This scholarly article investigates the obstacles and recommendations pertaining to the execution of National Education Policy 2020 in Indian state of Himachal Pradesh. A comprehensive reform policy, the NEP 2020 endeavors to revolutionize the education system in India by emphasizing skill development, technology integration, experiential learning, and holistic and multidisciplinary education. Nevertheless, the execution of the policy encounters obstacles including insufficient infrastructure, resources, and capacity. In addition to capacity development, stakeholder engagement, evaluation and monitoring, resource mobilization, local adaptation, and collaboration with central government, the paper provides additional recommendations for addressing these challenges. In its entirety, the paper underscores the capacity of the NEP 2020 to revolutionize the educational landscape of Himachal Pradesh upon successful execution.

(Rahaman et al., 2024) The objective of this assessment was to examine "Early Childhood Care and Education" (ECCE) in India through the lens of various policies and initiatives. India has enacted a multitude of policies and schemes pertaining to early childhood education (ECCE), such as NEP 2020, NPE 1986, NCF 2005, ICDS, "National ECCE Policy", NPAC 2016, and SDG 4. These initiatives proffer recommendations on diverse facets of early education. These suggestions are crucial for the advancement of ECCE. ECCE encompasses a variety of programs that promote the physical, mental, and social development of infants and toddlers between the ages of seven and eight. The ECCE program is of the utmost importance because it lays the groundwork for children's future development. Similar to numerous other nations, India offers a plethora of policies and initiatives that cater to ECCE.

(Sahoo & Pradhan, 2024) Concerning ECCE, this article examines the obstacles and prospects associated with implementation of National Education Policy 2020. "Early Childhood Care and Education" (ECCE) is defined by the National Education Policy (NEP) 2020 as an essential cornerstone for lifelong learning. It emphasizes the necessity of providing quality early childhood care and education (ECCE) that incorporates play-based learning & holistic development to all individuals. The overarching goal of NEP 2020 is to improve early childhood education and care (ECCE) programs so that children have a smooth

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21st Century Skills in Education: A Review of Frameworks and Implementation

Dr. Sarita Bhawani Malviya^{1*}

¹Assistant Professor, Institute- Faculty of Law, RKDF University, Bhopal(M.P.).

Abstract

The National Education Policy (NEP) 2020 introduces a substantial transformation in the educational framework of India by placing greater emphasis on the development of skills rather than mere memorization. This paper undertakes an examination of the fundamental elements of NEP 2020, including its educational reforms and its contribution to the transformation of India's education system in the direction of skills development. By conducting a comprehensive examination, this paper emphasizes the potential impacts of NEP 2020 in developing a framework for students equipped with skills necessary to thrive in the globalized economy of the twenty-first century.

Keywords: NEP 2020, Education, Skill development, Skill-centric approaches, challenges.

1 Introduction

The education system has consistently held a pivotal position in the foundational tenets of the Indian Constitution. It serves as the instrument by which the individual is equipped with the necessary skills to realize their full potential in the future. Education assumes a pivotal position in a dynamic global landscape characterized by technological advancements across multiple disciplines. There is a need for an educated and proficient labor force that possesses the capacity to operate across multiple disciplines. Consequently, educational opportunities must be made available to ensure the long-term viability of the nation. The Agenda of One of the Sustainable Development Goals (adopted by all nations in 2015) aims

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to promote opportunities for lifelong learning and assure equitable and inclusive quality education for all by 2030.(Lukose, 2023)

The National Education Policy (NEP) 2020 aims to implement a transformative approach to the education system through the promotion of problem-solving abilities, critical thinking, and creativity. This policy proposes a skills-based approach with the objective of cultivating versatile individuals capable of making meaningful contributions to society and effectively navigating the complexities of the contemporary era. The NEP 2020 implements comprehensive educational reforms at every level. Across all levels of education, from early infancy to higher education policy promotes interdisciplinary learning, course selection flexibility, and a holistic approach to development. The advancement of experiential learning and the reorganization of curricular frameworks prioritize the development of skills over memorization. The policy acknowledges the necessity of providing students with competencies that extend beyond their areas of expertise. Digital literacy, critical thinking, collaboration, and communication are deemed indispensable proficiencies in the twenty-first century. Promoting a multidisciplinary approach, the policy enables pupils to investigate a wide range of subjects and cultivate a more comprehensive repertoire of abilities.

Outcome-based education (OBE) is a fundamental concept that NEP 2020 highlights. The emphasis is shifted from instructional inputs to intended learning outcomes via OBE. Effective communication of learning objectives is essential in order for educators to develop courses that emphasize skill enhancement rather than simply imparting content. For OBE to be implemented effectively, rigorous methods of assessing course outcomes are necessary. In order to assess skills in addition to knowledge, conventional examination systems have been redesigned. A more comprehensive and ongoing assessment approach offers a more holistic perspective on the abilities of the students. NEP 2020 places significant importance on the alignment between program objectives and course outcomes. This procedure entails the harmonization of the objectives of program with the distinct educational results of individual courses. This process of mapping guarantees that every course makes a substantial contribution towards the cultivation of intended skills and competencies.

The education sector is in a constant state of change, as technological advancements, shifting societal dynamics, as well as the demands of the labor market all exert an influence. In light of societal advancements, it is imperative that the education system modify itself to furnish students with the requisite competencies and understandings to prosper in an intricate and interrelated global landscape. The world is experiencing swift changes in the twenty-first century as a result of globalization and digitization. Novel industries are emerging while conventional ones are undergoing a transformation. In addition to possessing academic qualifications, this ever-changing environment necessitates a workforce that exhibits practical expertise, adaptability, critical thinking, as well as problem-solving prowess. There has been an increased disparity between the competencies obtained via formal education and the ones that employers seek. A considerable number of recent graduates encounter difficulties in securing employment as a result of the incongruity between their academic background and the occupational demands of the sector. By emphasizing skill development and the practical implementation of

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knowledge, NEP 2020 ensures that graduates possess the necessary competencies to thrive in the professional world.

1.1 Skill Development

Within the framework of the NEP 2020, Outcome-Based Education assumes a critical function in cultivating the growth of students' skill sets. Conventional approaches to education frequently placed emphasis on the transmission of knowledge and the retention of information in writing, thereby limiting opportunities for the development of practical abilities. By defining observable, quantifiable, and specific learning outcomes that encompass both cognitive as well as non-cognitive abilities, OBE bridges this void. The aforementioned results comprise not only subject-matter expertise but also fundamental competencies including communication, problem-solving, collaboration, and flexibility. Learning outcomes are precisely defined declarations within an OBE framework that delineate the knowledge, comprehension, and abilities that a student ought to possess upon the culmination of a given course or program. The intended results are not ambiguous aspirations; instead, they are precise and measurable, furnishing educators and learners with a distinct course of action.

By incorporating skill-based learning outcomes through academic curricula, establishments can guarantee that pupils not only gain theoretical understanding but also develop practical competencies that are applicable in the workplace. Outcome-Based Education functions as a potent catalyst for the enhancement of skills within the educational environment. By basing education on precisely defined learning outcomes that incorporate practical skills as well as knowledge, OBE is in accordance with the goals of the NEP 2020 and equips students with the necessary abilities to prosper in a swiftly evolving and expertise-driven international environment. Incorporating skill development via OBE not only augments the employability of graduates but also furnishes them with the necessary capabilities to contribute to society in a versatile, inventive, and progressive manner.

1.2 Role Played by NEP 2020 in Promoting Skill Development

The NEP's revolutionary approach to the education system has significantly contributed to the advancement of skills. NEP 2020 guarantees that pupils attain a wide range of proficiencies necessary for achievement in the labor market of the twenty-first century. The policy recognizes the critical nature of abilities such as communication, problem-solving, critical thinking, and creativity. Together with academic knowledge, these abilities are emphasized in the NEP. As a result, the function of NEP within skill development is to cultivate students with a comprehensive skill set that can adeptly navigate the diverse demands of the workplace and society.

An additional noteworthy function of NEP 2020 is to prioritize vocational training and education. The policy prioritizes the reduction of the disparity between education and employment through the encouragement of vocational programs and internships. By providing students with industry-specific knowledge and practical skills, this methodology facilitates a smooth transition for them into the professional world. Consequently, the NEP plays a crucial role in skill development by guaranteeing that

students acquire the necessary competencies for lucrative employment and entrepreneurial endeavors, thereby enabling them to actively participate in the economic progress of the country.

Holistic Development: The National Education Policy 2020 promotes a multidisciplinary approach toward learning in recognition of the importance of holistic development. It encourages students to explore a variety of disciplines and topics, thereby developing their critical thinking, creativity, as well as problem-solving abilities.

Flexibility and Choice: The policy grants students autonomy and selection throughout their academic trajectory. The educational system prioritizes a student-centric approach, allowing individuals to select courses in accordance with their specific interests, aptitudes, and professional ambitions.

Focus on Skill Development: In terms of talent development, NEP plays a crucial function. The policy acknowledges that success cannot be achieved solely through academic knowledge. As a result, the policy incorporates digital literacy, problem-solving, critical thinking, and communication abilities into the curriculum, thereby preparing students to confront the challenges of the labor market in the twenty-first century.

Vocational Training: In addition, the NEP 2020 incorporates vocational training for students, which provides them with industry-specific knowledge and practical skills. It promotes vocational education and apprenticeships beginning in secondary school and guarantees that students are adequately prepared for entrepreneurial endeavors and employment.

1.3 Building 21st-century skills in student – NEP2020

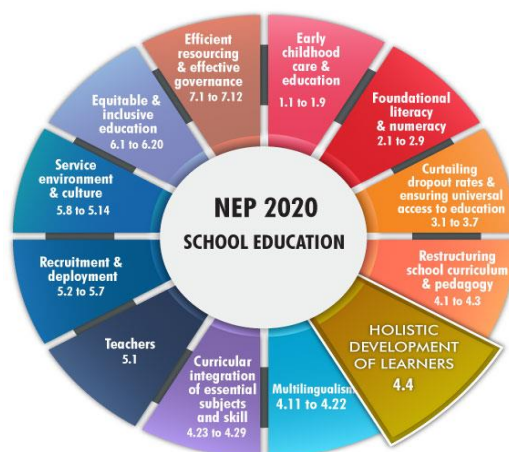


Figure 1 Various component of NEP 2020*

*<https://lh4.googleusercontent.com/XjWnEI9Aac9Ua-6SOuRyHJfsXuAwwIglCQcxYusTOS74DDmq1R353hSjy4GSE27OfwRbhkbw0YjRVhc1vak44qsPoMSEailWGkxzXyS-aORvPdG3Vg-fsyB5SJcMJfShyCuxpEwpgJ-RMVra9zYdgLA>

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The advent of the twenty-first century has presented an array of novel obstacles and prospects. In an era of swift transformations, it is imperative that students cultivate a repertoire of 21st-century competencies. Critical thinking, problem-solving, collaboration, creativity, and communication are among these abilities. In recent times, there has been an increasing focus on equipping students with these competencies. This is especially evident in India, where the "National Education Policy 2020" (NEP2020) has designated the development of students who are proficient in navigating the complexities of the twenty-first century as a top priority. The overarching objective of NEP2020 is to furnish students with the necessary competencies to thrive in the twenty-first century.

NEP2020 assists in the development of a cohort of pupils who possess the requisite aptitudes to effectively confront the complexities of the twenty-first century and effectuate constructive change on a global scale through its emphasis on critical thinking, problem-solving, collaboration, communication, and creativity. By integrating technology, experiential learning, and multidisciplinary learning, NEP2020 equips students with the knowledge, skills, and resources necessary for global success.

There are various components on which NEP focuses on:

1. Critical Thinking & Problem Solving

An essential element of NEP2020 is its prioritization of the cultivation of students' critical thinking as well as problem-solving capabilities. Possessing these abilities is critical for achieving success in the contemporary, fast-paced world, in which information is perpetually evolving and novel challenges arise on a regular basis. By imparting critical thinking and problem-solving skills to students, we equip them with the necessary abilities to navigate this intricate environment and arrive at well-informed judgments.

2. Communication & Collaboration

A further crucial element of NEP2020 is its focus on collaboration and communication. It is becoming increasingly vital for individuals to have the ability to collaborate effectively with others in order to accomplish shared objectives. By fostering effective collaboration and communication among students, we assist them in establishing the networks and connections that are critical for achieving success in the contemporary era.

3. Creativity

NEP2020 emphasizes creativity in addition to critical reasoning, problem-solving, communication, and collaboration. Progress and innovation are dependent on creativity, which is gaining importance in the contemporary economy. By cultivating students' creativity, we are assisting them in devising novel and inventive resolutions to the challenges they will inevitably encounter in the future.

4. Multidisciplinary Learning

Multidisciplinary learning, which is intended to help students develop a broader perspective as well as a more profound understanding of the world, is one of the most significant developments. This approach is predicated on the notion that students are more likely to retain and engage with information when it is

presented in a meaningful way to them and that learning is greatest whenever it is contextualized and applicable to the real world.

5. Experiential Learning

An additional critical element of NEP2020 is its prioritization of experiential learning. Students acquire knowledge most effectively through practical experiences, such as internships, field excursions, and projects. By providing opportunities for students to implement their knowledge in practical, twenty-first century scenarios, we are aiding in the development of the necessary competencies for their future success.

6. Use Of Technology

NEP2020 concludes by emphasizing the significance of technology within education. Students' technological proficiency is becoming an ever-increasing necessity due to the proliferation of digital technologies. By integrating technology into the educational setting, we equip students with the necessary resources to retrieve, evaluate, and generate information in the contemporary digital age.

1.4 Challenges In Implementing A Skill-Centric Approach

1. The transition to a proficiency-based methodology, as delineated in the "National Education Policy" (NEP) 2020, is a paradigm-shifting undertaking that gives rise to a range of prospects and obstacles. Although the prioritization of skills is consistent with the changing demands of the contemporary global landscape, there exist numerous obstacles that must be surmounted throughout the execution of this methodology.
2. Change aversion among numerous stakeholders, including institutions, parents, and educators, is one of the most significant obstacles to instituting a skill-centric approach. Curriculum delivery and standardized assessment are frequently given precedence in conventional educational systems. Transitioning the emphasis from knowledge acquisition to hands-on implementation necessitates a paradigm shift, which could face resistance from individuals accustomed to the existing state of affairs.
3. Educators are crucial to the effective implementation of a skill-centered methodology. It is imperative that they modify their pedagogical approaches, evaluative techniques, and course curricula in accordance with the emerging paradigm. Effectively fostering skill development necessitates the implementation of comprehensive professional development and training initiatives that furnish educators with the requisite knowledge and abilities.
4. It is necessary to realign assessment strategies in order to assess practical skill acquisition in addition to knowledge retention. It is possible that conventional assessment methods fail to sufficiently evaluate competencies such as problem-solving, critical thinking, communication, and creativity. Creating valid and dependable evaluation methods that precisely quantify the acquisition of skills can present a formidable task.

5. The adoption of skill-centric approach may require modifications to the allocation of resources. This includes the development of experiential learning environments, investments in technology, and updates to learning materials. Sufficient resources are critical for enabling skill development activities, initiatives, and practical experiences to be successful.

1.5 Impact of Skill-Centric Approach

1. By implementing a skill-centric approach, universities endow their graduates with tangible proficiencies that enhance their desirability to potential employers. Education can be transformed into a direct route to employment by emphasizing market-relevant skills; this narrows the divide between education as well as employability.
2. A skill-centric approach cultivates an entrepreneurial mindset and promotes innovation. It is more probable that graduates who possess problem-solving abilities, adaptability, and creativity will recognize opportunities, make contributions to innovation, and potentially engage in entrepreneurial endeavors, thereby stimulating economic expansion.
3. Addressing worldwide issues such as social inequality, healthcare, and climate change requires competencies including collaboration, ethical decision-making, and critical thinking. Those who receive a skill-centered education are empowered to make significant contributions to addressing the most critical challenges facing society.
4. Education that emphasizes skills development advocates for lifelong learning. Graduates are adequately equipped to consistently enhance their expertise and understanding in response to the dynamic nature of industries and the emergence of fresh obstacles. This flexibility guarantees continued professional advancement and individual progress.

2 Literature Review

(Kumar Jain et al., 2021) Notwithstanding the obstacles presented by the pandemic, the "National Education Policy" 2020 could supply an impetus for the education sector to flourish. The NEP's announcement drew criticism via industry experts, yet it has the potential to establish India as a globally renowned educational refuge. The "National Education Policy" 2020 signifies the transition from the previous policy, which was established in 1986, to a period characterized by novel educational reforms. This is the inaugural policy that endeavors to liberate students from the shackles of administrative limitations through the implementation of multiple-choice, interdisciplinary, and fortunate learning opportunities. Conversely, policy has been subject to critical examination and analysis by professionals in the field, resulting in divergent perspectives. The objective of the policy is to establish a resilient digital infrastructure within the education sector, which would guarantee continuous learning amidst unforeseen situations.

(M Shasidharan, 2021) Our Indian constitution stipulates, in Article 45 of the Directive Principles of State Policy, that education must be accessible to all on an equal basis. The state is required to comply

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with the center's instructions because to the Education being on the Concurrent list, however it is not mandated. Primary education, which is currently mandated by Article 21A, is a fundamental entitlement for students aged 6 to 14 years. Numerous new educational initiatives, including the midday meal program, the Navodaya Vidyalas, Sarva Siksha Abhiyan, Kendriya Vidyalayas, and others, have been established under the National Education Policy. The primary objective of this "national education policy" is to reform the conventional structure of higher education and secondary education. Shri. Narendra Modi, the prime minister of India, and his cabinet have adopted National Education Policy 2020. Therefore, the 34-year-old Old "National Education Policy" must be replaced in order to increase global competitiveness. The policy is effectively structured around five fundamental domains, namely accountability, quality, affordability, accessibility, and equality.

(Madheswari, 2021) India has historically made significant and praiseworthy advancements in the domain of education. Since the introduction of the modern education system by Macaulay in 20th century, Indian education has been influenced by his ideas. All modifications and reforms to education policy were founded exclusively on Macaulay's system. "National Education Policy", 2020 endeavors to overhaul the entire educational system, including research studies and early childhood education. In this age of technological predominance and the global transition to a digital environment, the education system requires an immediate and profound transformation. Furthermore, the discrepancy identified in the academic achievements of prestigious establishments in comparison to other establishments, as well as the global standing of Indian universities, requires an overhaul of education system.

(Yadav, 2021) The "New Education Policy" (NEP 2020), which was unveiled by the Government of India, represented a positive development and welcomed respite amidst the global downturn brought about by the Covid-19 pandemic. The NEP 2020 announcement came as an absolute surprise to many. Numerous educationists did not anticipate the modifications which NEP 2020 has proposed. While education policy has had an equal impact on both secondary and tertiary education, this article is predominately concerned with NEP 2020 and its implications for higher education.

(Umachagi & Selvi, 2022) It is widely acknowledged that education policy, being the principal driver of economic and social growth, must be predicated, forward-looking, and precisely delineated in each nation. In light of their distinct cultural and traditional heritages, numerous countries have established a variety of educational systems. The recently unveiled "New Education Policy 2020" by the Government of India seeks to establish a sustainable knowledge society that is both dynamic and fair, by ensuring that all citizens have access to education of exceptional quality. A paradigm shift will occur as a result of this commendable measure, which will modernize, advance, and promote equity within the Indian education system.

(Soni, 2022) Education assumes a pivotal role in the progress and advancement of both the nation and its populace, thus serving as the cornerstone of society. Education undoubtedly possesses formidable capabilities. In accordance with the suggestions put forth by an advisory panel led by Dr. Kasturirangan, former chairman of the "Indian Space Research Organization", a New Education Policy has been formulated. This policy centers on the following aspects: affordability, accountability, quality, and equity

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in the realm of education within our nation. The author of this paper will examine issues and challenges associated with the implementation of different strategies outlined in the 2020 national education policy, as well as the complexities involved and the key areas that are still lacking. Ultimately, the paper delves into the disparity that exists between policy and practice, supported by recent data statistics. In subsequent sections of this paper, every aspect pertaining to the potential difficulties that may arise as a result of the modifications to new education policy has been examined in depth.

(Jain, 2022) New Policy is an all-encompassing structure designed to bring about a paradigm shift in the education systems of India. Emphasizing the development of students' cognitive, social, and affective competencies, the policy proposes a multidisciplinary and holistic approach to education. Nevertheless, the execution of the policy encounters numerous obstacles, such as insufficient funding, inadequate infrastructure, and a scarcity of trained personnel. NEP 2020's critical analysis demonstrates that despite the policy's lofty goals and good intentions, its execution could encounter substantial obstacles. Despite the policy's commendable emphasis on a student-centric approach, the prevailing education system continues to be predominantly teacher-centric.

(Gupta & Gupta, 2022) Institutions of higher education will experience a significant paradigm shift within the next two decades. Academic leaders at various echelons, including department heads, heads of educational programs, heads of governance, deans, and team leaders, will have a substantial impact on the institute's implementation of innovations, reforms, and a fundamental transformation in order to attain accreditation, excellence, and quality education. Effective leadership at every level of the institute does not occur automatically on the basis of a person's credentials and experience. Leaders are educated and nurtured in order to confront the obstacles that arise from the transformation envisioned in the 2020 national education policy. The executives receive guidance and support to enhance their performance potential. The competence framework and leadership roles outlined in this paper are derived from the provisions of the National Education Policy 2020, a review of the relevant literature, and the authors' personal experiences.

(Vijay, 2023) The objective of the New Education Policy (NEP) 2020 is to revolutionize the education system in India through an all-encompassing series of reforms. The policy seeks to rectify the deficiencies that the existing system exhibits, including inadequate emphasis on critical thinking as well as problem-solving abilities and subpar academic achievements. The education system is intended to be made more holistic, multifaceted, and adaptable through the implementation of this policy. Additionally, the policy seeks to foster in students critical thinking, originality, and innovation. This document assesses the efficacy of the NEP 2020 in enhancing the education system of India through a comprehensive analysis. A comprehensive examination of existing literature, government documents, and information sources formed the basis of the review study.

(Lowe & Galhotra, 2023) The National Education Policy (NEP) 2020 introduces a substantial transformation in the educational framework of India by placing greater emphasis on the development of skills rather than mere memorization. This paper undertakes an examination of the fundamental elements of NEP 2020, including its educational reforms and its contribution to the transformation of

India's education system in the direction of skills development. The text explores the principles of outcome-based education, course outcome measurement, and the critical correspondence between program objectives and course outcomes as stipulated in the policy. By conducting an extensive examination, this article emphasizes the possible consequences of NEP 2020 on the development of a cohort of students who possess the aptitudes essential for the interconnected global economy of the twenty-first century.

(Lukose, 2023) The government's NEP 2020 represents a significant endeavor to reform the education system in response to the alterations brought about by the pandemic. The policy places greater emphasis on skill-based instruction for students, enabling them to make informed decisions regarding their future endeavors. The technological revolution, also referred to as the fourth industrial revolution, is causing a fundamental shift in human behavior, work practices, and social interactions. In order to turn our kids into real global resources, NEP is centered on encouraging innovation and curiosity among students so that college and university curricula are more skill-oriented. The purpose of this study is to investigate the involvement of stakeholders in skill-based development for students, as well as to identify the suggested learning skills that students should acquire. The purpose of this research is to determine how NEP 2020 influences the development of student skills. Additionally, the paper investigates the viewpoints of various stakeholders regarding skill development.

(Singh, 2024) Physical education programs are of paramount importance in educational environments as they actively encourage the adoption of healthy lifestyles as well as holistic growth among students. The purpose of this comprehensive evaluation is to analyze the impact of infrastructure on the improvement of physical education programs. Infrastructure comprises a multitude of elements, including but not limited to facilities, apparatus, and outdoor areas. It is critical to comprehend the manner in which these components contribute to the efficacy of "physical education programs" in order to maximize student engagement, learning achievements, and general welfare. Physical education, encompassing the development of social skills, physical fitness, cognitive advancement, and the acquisition of fundamental movement abilities, is an indispensable element in fostering overall well-being and health throughout one's lifespan. The success of physical education programs is predominantly determined by the framework that fosters and facilitates learning. The outcomes and caliber of Physical Education programs are substantially impacted by the infrastructure, encompassing structures, equipment, and outdoor spaces.

3 CONCLUSION

The NEP 2020 signifies a paradigm shift in Indian education, emphasizing skill development over mere memorization. Although the adoption of skill-centric approach is not devoid of obstacles, its potential ramifications for both individuals and society as a whole are substantial, as discussed in this paper. As a result, there will be a cohort of students who possess not only a solid foundation in academic principles but also the pragmatic abilities essential for achievement, ingenuity, and societal advancement in the twenty-first century.

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Teacher Training and Professional Development: Lessons from International Practices

Yasmeen Anwer^{1*}

¹English Lecturer, Digambar Jain Girls Inter College Sadar Meerut.

Abstract

Education is a critical factor in the formation and maturation of an individual's psyche. As a result, teaching emerges as a highly significant vocation, and the NEP 2020 further underscores the condition of educators by offering ongoing professional development opportunities to equip them with the necessary skills to excel in their role and contribute more effectively to the well-being of their students and nation at large. With an international perspective, this paper attempts to analyze the NEP 2020's implications for the professional development as well as practices of Teachers.

Keywords: NEP 2020, Teachers, CPD, International practices, Opportunities.

1 Introduction

The National Education Policy (NEP) 2020 was introduced by the Indian government on July 29, 2020, with the aim of restructuring the country's entire educational system. Its basis is built around the tenets of equity, affordability, quality, and responsibility. This strategy aligns with the 2030 Agenda for Sustainable Development and aims to transform India into a knowledge-driven nation and global powerhouse. The NEP 2020 aims to make education more transdisciplinary, flexible, comprehensive, and suitable for the challenges of the twenty-first century. It aims to draw attention to the unique characteristics of each student's learning. It will prepare India's youth for a wide range of current and future local and international concerns. (Sabar, 2024)

The first education policy of the twenty-first century, National Education Policy 2020 attempts to address the numerous and increasingly pressing needs of our nation's development. By offering high-quality

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education to everyone and establishing India as a global knowledge superpower, this National Education Policy envisions an education system rooted in Indian ethos that directly contributes to transforming India, or Bharat, into an equitable and vibrant knowledge society in a sustainable manner. According to the Policy, our institutions' curricula and pedagogy must instil in students a strong feeling of respect for the Constitutional values and Fundamental Duties, a sense of national identity, and an understanding of their roles and responsibilities in a world that is constantly changing (NEP-2020).

1.1 Teacher training outlined in NEP 2020

1. Integrated Teacher Education Program (ITEP)

The implementation of an "Integrated Teacher Education Program" (ITEP) by NEP 2020 signifies a deviation from the conventional methodology employed in teacher education. The objective of this integrated four-year B.Ed. program is to furnish prospective educators with an all-encompassing repertoire of abilities, including subject expertise, pedagogical approaches, and hands-on classroom involvement. Through the integration of professional education and general education, ITEP endeavors to cultivate educators who are not only proficient in their selected fields but also cognizant of efficacious pedagogical approaches. By placing significant importance on hands-on experience gained from internships and school visits, prospective educators are sufficiently equipped to navigate the intricacies of the classroom setting. ITEP signifies a substantial advancement in the pursuit of enhancing the quality of teacher education in the nation through the promotion of a comprehensive and hands-on methodology to instruction.

2. Continuous Professional Development (CPD)

The emphasis of NEP 2020 on "Continuous Professional Development" (CPD) acknowledges the criticality of educators engaging in lifelong learning. The implementation of "National Professional Standards for Teachers" (NPST) guarantees a uniform and elevated level of instruction throughout the nation by establishing a structure for evaluating and improving the performance of educators. Consistent participation in in-service training sessions allows educators to remain updated on developments in instruction and evaluation practices, technological pedagogical methods, and technological innovations. NEP 2020 aims to foster a culture of ongoing teacher development by allocating resources towards continuing professional development (CPD), with the ultimate goal of improving the quality and efficacy of instruction for the benefit of students.

3. Mentoring and Peer Learning

Recognizing the importance of collaborative professional development, NEP 2020 places a focus on mentorship and peer learning programs. Mentorship programs establish connections between seasoned educators and inexperienced teachers, offering the former invaluable counsel and assistance during their formative years in the field. Mentor-mentee relationships serve as a catalyst for the exchange of knowledge, expertise, and optimal methodologies, thereby fostering the professional development of each participant. In addition, "Professional Learning Communities" provide platforms for educators to

engage within collaborative problem-solving, exchange novel pedagogical approaches, and engage in self-reflection regarding their instructional methodologies. Through the cultivation of a collaborative and knowledge-sharing environment, NEP 2020 endeavors to leverage the combined proficiency of educators in order to propel ongoing enhancements in educational achievements.

4. Use of Technology in Teacher Training

Recognizing the importance of collaborative professional development, NEP 2020 places a focus on mentorship and peer learning programs. Mentorship programs establish connections between seasoned educators and inexperienced teachers, offering the former invaluable counsel and assistance during their formative years in the field. Mentor-mentee relationships serve as a catalyst for the exchange of knowledge, expertise, and optimal methodologies, thereby fostering the professional development of each participant. In addition, "Professional Learning Communities" provide platforms for educators to engage within collaborative problem-solving, exchange novel pedagogical approaches, and engage in self-reflection regarding their instructional methodologies. Through the cultivation of a collaborative and knowledge-sharing environment, NEP 2020 endeavors to leverage the combined proficiency of educators in order to propel ongoing enhancements in educational achievements.

5. Focus on Pedagogical Innovations

The focus of NEP 2020 on pedagogical innovations signifies a dedication to cultivating learning approaches that are experiential and student-centered. The policy envisions that through the provision of teacher training in cutting-edge pedagogical approaches like inquiry-based learning, project-based learning, and experiential learning, students will be encouraged to actively participate, develop critical thinking abilities, and solve problems. These novel methodologies depart from conventional didactic teaching approaches in favor of collaborative and participatory instructional tactics that accommodate a wide range of learning styles and preferences. NEP 2020 seeks to foster inspiring learning environments that motivate students to achieve their maximum capabilities through the promotion of innovative pedagogical approaches and the modification of teaching methods in response to shifting educational trends.

6. Diverse and Inclusive Training

Acknowledging the significance of catering to the requirements of every learner, including individuals from those who are marginalized and those possessing varied learning abilities, NEP 2020 places considerable emphasis on inclusive and diverse training. Incorporating modules on special needs education, cultural sensitivity, and inclusivity into teacher preparation programs provides instructors with the knowledge and abilities necessary to foster inclusive and supportive learning environments. Through the cultivation of an appreciation for a wide range of viewpoints and life experiences, NEP 2020 endeavors to advance social justice, diversity, and equity within the realm of education. By means of specialised training and initiatives for professional development, educators enhance their capabilities

to cater to the varied requirements of their pupils and guarantee that each individual learner is granted access to high-quality education.

7. Localized and Contextualized Training

Teacher education programs in India must be contextualized to represent the country's rich linguistic, cultural, and scholastic variety, according to NEP 2020. Teachers will be better equipped to handle the possibilities and threats faced by their students in diverse communities if they create training modules and resources tailored to each area. Localized training initiatives serve to augment the applicability and efficacy of teacher education while simultaneously cultivating a more profound rapport between educators and the cultural heritage and personal encounters of their pupils. Moreover, NEP 2020 ensures that education remains open to all for all learners while promoting linguistic diversity as well as cultural preservation through the integration of local languages as well as cultural traditions through the curriculum.

8. Enhanced Quality Assurance

NEP 2020 places a high priority on the implementation of resilient quality assurance systems in order to maintain elevated benchmarks within institutions of teacher education. Regular assessments and accreditation procedures guarantee that teacher preparation programs conform to stringent quality standards and address the ever-changing demands of the education industry. Through the establishment of institutional accountability measures for program quality and outcomes, NEP 2020 aims to foster confidence in teaching profession and advance the standard of educator preparation. In addition, persistent surveillance and evaluation endeavors facilitate the ongoing enhancement and optimization of teacher training programs, guaranteeing their continued applicability, efficacy, and adaptability in light of the evolving educational environment.

9. Collaboration with Higher Education Institutions

Higher education institutions and schools should work together more closely to improve teacher preparation and professional growth, according to NEP 2020. Through the establishment of collaborations between the classroom and the workplace, educators are granted entry to state-of-the-art research, resources, and knowledge that enhance and inform their pedagogical approach. Moreover, collaborative endeavors serve to foster the amalgamation of principles and implementation, thereby reconnecting the domains of educational research and practical implementation. By means of collaborative training initiatives, research undertakings, and knowledge sharing engagements, NEP 2020 endeavors to cultivate an environment within the teaching vocation that promotes ingenuity, investigation, and ongoing education.

10. Career Progression and Incentives

NEP 2020 aims to enhance the appeal and satisfaction of the teaching profession through the implementation of well-defined career advancement trajectories and the provision of incentives to foster

professional development. Career advancement systems based on merit acknowledge and incentivize exemplary instruction, thereby inspiring educators to pursue opportunities for continuous professional development and enhance their craft. Awards, scholarships, and performance-based incentives serve as additional motivators for educators to strive for excellence in their positions and make valuable contributions towards improving student outcomes. Through allocation of resources towards the development and welfare of educators, NEP 2020 endeavors to bolster employment contentment, employee retention, and general morale among the teaching staff, thereby contributing to the enhancement of education standards in India.

1.2 Continuous Professional Development

Rapidly, the information landscape is transforming across the globe. A multitude of significant scientific and technological progressions, such as the advent of artificial intelligence, machine learning, and big data, may potentially render numerous menial occupations obsolete on a global scale. Mathematicians, computer scientists, data scientists, and those with interdisciplinary abilities in the social sciences, the humanities, and the natural sciences will be in high demand as a result. By implementing substantial reforms that prioritize excellence, fairness, and honesty across the entire system—from early childhood education and care to higher education—it is possible to narrow the disparity between current learning outcomes and the required standards. All individuals are indispensably equipped with the competencies and abilities of the twenty-first century.

"Continuing professional development" (CPD) is an imperative for instructors in the dynamic realm of education, characterized by progressive technological advancements. Continuous Professional Development ensures that educators continue to acquire knowledge, develop professionally, and advance so that they may remain effective amidst shifting work environments. The essay emphasizes the significance of "Continuous Professional Development" (CPD) in shaping the perspectives, personality characteristics, and skills of teachers. This is because CPD ultimately impacts teaching strategies and the academic achievement of students. In order to increase their effectiveness, educators acquire, develop, and fortify their skills and knowledge through CPD.

It is a continuous procedure that evolves in reaction to the dynamic nature of the professional environment. Professional development for educators commences during their initial phase of teacher education and persists until their retirement, constituting an ongoing and enduring learning endeavor. The process is commonly represented as a continuum consisting of distinct stages: initial preparatory phase, induction phase, becoming phase, and teaching phase (continuous professional development for teachers who have completed the initial phase of teaching).

1.3 Opportunities for Engaging in CPD

CPD will be mandatory for educators whatsoever levels of instruction, as guaranteed by the NEP 2020. In order to accomplish this, NEP 2020 intends to establish provisions for providing CPD to various teachers, as stated: "Educators will be afforded ongoing opportunities for self-development and to

acquire knowledge of the most recent developments and innovations in their fields." Workshops at the regional, state, federal, and international levels, as well as online modules for professional development for educators, will all be part of the program.

While NEP 2020 does not specify whether the advantages of CPD will be extended to teachers in private and public institutions, or whether it will primarily benefit teachers employed in government institutions, this information is not disclosed. It is essential to note that current CPD programs, especially in the education sector, primarily assist educators employed by the government or government-aided institutions. Private institution instructors are responsible for planning and organizing CPD at their own expense and initiative. Additionally, the policy stipulates that instructors must augment their responsibilities and serve as facilitators for students. As well as with the instructor, instructors are anticipated to encourage students' active participation with the material, their fellow students, and the instructor. In order to achieve this objective, the policy stipulates that "Educators shall be subjected to comprehensive training in learner-centric pedagogy and the development of their own skills as creators of high-quality online content utilizing online teaching platforms and tools".

Additionally, NEP 2020 foresees online platforms facilitating the exchange of best practices and professional-related ideas among educators. In relation to the more extensive application of technology for continuing professional development (CPD), the policy proposes the following: "The utilization of technological platforms like SWAYAM/DIKSHA for the purpose of online teacher training will be promoted, enabling the rapid implementation of standardized training programs for a substantial number of educators." Additionally, the policy stipulates that instructors in higher education will be granted mentoring opportunities from seasoned and knowledgeable educators. The proposed initiative seeks to facilitate avenues for educators to exchange professional concerns and obtain pertinent responses from individuals who have firsthand knowledge of the system and have encountered comparable challenges or situations. The policy emphasizes the following regarding this initiative: "A National Mission for Mentoring shall be established, comprising a substantial group of distinguished senior/retired faculty members, including those proficient in teaching Indian languages, who are inclined to offer both temporary and permanent mentoring and professional assistance to educators at the university and college levels."

1.4 Recruitment and Development

1. The implementation of the various strategies proposed in the NEP 2020 to enhance teacher professional development is feasible beginning with the recruitment and deployment phase. In order to reduce the high turnover rate among educators, it is important to put safeguards in place throughout the hiring process and grant local students preference when hiring. Planning for teacher requirements by subject will be conducted in order to evaluate vacancies for teachers.
2. It is the belief of NEP 2020 that only exceptionally qualified pupils are qualified to become educators. As a result, plans are underway to implement a four-year Integrated B.Ed. program that will provide special merit-based scholarships to rural students, with a particular emphasis

on female students. These scholarships aim to enable deserving students to successfully complete a high-quality Integrated B.Ed. program as well as excel as educators in their chosen fields. In addition to providing learners to highly qualified instructors, this will also provide them with local role models.

3. Educators assigned to rural regions, particularly those experiencing a scarcity of qualified instructors, will be furnished with specialized amenities. To teach within rural areas, however, each educator must possess a perfect command of the local tongue.
4. Multilingual education is the focal point of the NEP 2020 recommendation to address the issue of school withdrawals caused by language barriers. Teachers will be required to take the TET examination to demonstrate their subject expertise and teaching methodology.
5. In the process of selecting subject teachers for foundation, preparatory, intermediate, and secondary levels of education, individuals will be considered according to their TET or NTA scores in the respective subject. The recruitment of teachers for schools as well as school complexes will place an emphasis on demonstrations and interviews.
6. As per NEP 2020, in order to enhance teacher development and recruitment, an adequate number of instructors are required in the following subject areas: language, vocational education, art, and physical education. Nevertheless, it will be necessary to recruit additional educators to staff a variety of educational establishments under the jurisdiction of the "State or Union Territory Government".
7. Furthermore, it is possible that some community members could be designated as "Master Instructors" to provide instruction within the school complex. These teachers could focus on things like traditional regional arts and crafts, vocational skills, business, farming, or something else entirely. By collaborating with these "Master Instructors," pupils can preserve these traditions while gaining knowledge of local customs and occupations.

1.5 Approaches incorporated into NEP 2020 from international practices

1. Integrated Teacher Education Program (ITEP)

Teacher education programs in countries such as Singapore and Finland are comprehensive and meticulously organized. Teacher preparation in Finland is widely recognized for its comprehensive curriculum, rigorous selection process, and integrated approach—from the outset, aspiring educators partake in theoretical coursework and practical training. An integrated Bachelor of Education (B.Ed.) degree that spans four years and covers both theoretical and practical aspects of education is being proposed by the NEP 2020. The objective of this endeavor is to cultivate educators who are comprehensive in nature, possessing not only a profound comprehension of their field but also the pedagogical proficiencies essential for effective instruction. The objective of the program is to enhance the standing and caliber of teaching profession in India through its adherence to global models.

2. Continuous Professional Development (CPD)

Consensus has been reached in the United Kingdom and Canada regarding "ongoing professional development" of educators. These systems guarantee that educators consistently enhance their expertise and understanding in order to remain current with pedagogical developments and progress in the field. The "National Professional Standards for Teachers" (NPST), which establish benchmarks for teacher performance and professional development, are introduced by NEP 2020. Further, the policy stipulates that instructors are required to participate in periodic in-service training and seminars in order to remain informed about emerging pedagogical approaches and modifications to the curriculum. The purpose of this ongoing professional development is to establish an education system that is both dynamic and responsive.

3. Mentoring and Peer Learning

For teacher development, China as well as Japan emphasize the significance of mentoring as well as peer learning. New teachers are mentored by seasoned educators who impart knowledge and techniques for improving classroom efficacy. NEP 2020 promotes the formation of mentoring initiatives in which inexperienced educators provide guidance to their more seasoned counterparts. Additionally, it encourages the formation of "Professional Learning Communities", which promote collaborative problem-solving and peer-to-peer learning. The objective of these initiatives is to foster a cohort of educators who are mutually supportive and committed to perpetually enhancing their pedagogical approaches.

4. Use of Technology in Teacher Training

Technological integration is a defining characteristic of the educational institutions of both South Korea and the United States. In order to augment teacher education, these nations employ online platforms, digital resources, as well as virtual classrooms. Teacher preparation should make extensive use of technology, according to NEP 2020. This encompasses digital learning materials, webinars, and online courses, which offer scalable and adaptable training opportunities. The policy seeks to ensure that all educators, irrespective of their geographical placement, have equitable access to superior professional development materials through the utilization of technology.

5. Focus on Pedagogical Innovations

Finland and Germany lead the way in the implementation of innovative pedagogical practices. These nations promote the adoption and experimentation of novel pedagogical approaches by educators in an effort to enhance learning and student participation outcomes. The importance of providing instructors with training in innovative pedagogical methods, including inquiry-based learning, project-based learning, and experiential learning, is underscored in NEP 2020. The policy seeks to enhance students' learning experience and efficacy by cultivating innovative thinking and critical thinking within the classroom environment.

6. Diverse and Inclusive Training

The objectives of teacher preparation programs in Australia and Canada are to accommodate the needs of pupils from various cultural contexts and those who have special requirements. Teacher training programs are designed to integrate principles of inclusion and diversity as part of NEP 2020. Educators undergo comprehensive training to effectively manage heterogeneous classrooms and implement supportive learning strategies for all pupils, including individuals who are handicapped or belong to marginalized communities. This approach guarantees that all students have access to an education that is fair and impartial.

7. Localized and Contextualized Training

By ensuring that educators are adequately equipped to confront the unique obstacles and prospects of their communities, New Zealand's teacher education programs are adapted to local circumstances and requirements. NEP 2020 supports the creation of teacher training modules that are tailored to specific regions, considering factors such as indigenous languages, cultural norms, and educational obstacles. Through the process of contextualizing training, policy endeavors to enhance the applicability and efficacy of education for students residing in various regions of India.

8. Enhanced Quality Assurance

Singapore and Finland's educational systems are distinguished by the rigorous standards that govern teacher preparation institutions. These nations guarantee the rigor of teacher preparation programs and the classroom readiness of their graduates. Implementation of rigorous accreditation and the standard control protocols is mandated by NEP 2020 for institutions of teacher education. The policy endeavors to safeguard all educators from lack of essential skills and knowledge and to enhance the caliber of teacher preparation through the implementation of rigorous criteria.

9. Collaboration with Higher Education Institutions

Collaboration among schools and institutions of higher education in the United States and the United Kingdom affords educators opportunities for research and practical training. These collaborative alliances enhance the caliber of teacher education as well as cultivate an environment that promotes ongoing progress. NEP 2020 promotes the formation of comparable alliances among universities and institutions in India. The primary objective of these partnerships is to grant educators access to current research and optimal methodologies in the field of education, thus augmenting their professional growth and ultimately elevating the caliber of instruction they deliver.

10. Career Progression and Incentives

The Singaporean education system provides instructors with incentives and well-defined career advancement trajectories, thereby enhancing the allure and satisfaction of the teaching profession. In addition to incentives for educators, NEP 2020 suggests instituting a merit-based career advancement

system. The policy endeavors to elevate the standard of education in the nation as a whole by attracting and retaining exceptional instructors through the recognition and recompense of exemplary teaching.

2 Literature Review

(Meijer, 2020) Teacher education in India originated in the Vedic period. During that period, senior "Brahmin students" were granted the opportunity to mentor junior pupils while simultaneously gaining training. It was European missionaries who initiated the present teacher preparation program in India. An efficacious mechanism for elevating the educational benchmarks of the nation is the revitalization and enhancement of "teacher education system". In order to enhance the content of "teacher education program", there are numerous issues that require urgent attention. Due to the impact of COVID-19, the "teacher education program" has undergone a significant paradigm shift. The reorganisation of the program has been duly recognised as an effort to more efficiently tackle the challenges and obstacles that have arisen within the realm of education.

(Farswan, 2020) Teacher education is a vital component of the human condition. Teacher education plays a significant role in fostering the growth of practical knowledge, accurate information, significant learning experiences, constructive thinking, high-quality knowledge, individual cognitive advancement, positive attitudes, effective teaching abilities, and a wide range of life competencies. Knowledge gained through an effective pedagogical approach is enduring, applicable, and indelible. Teacher education serves as the fundamental basis for all levels of education, guiding children forward in accordance with their aptitudes and interests in light of the present circumstances and circumstances.

(PM & Research, 2021) The caliber of education is decisive for the progress of any nation. Education is key to integration and national development. We require proficient educators in the areas of expertise, commitment, caliber, and ongoing professional growth. Consequently, the educator is the nation's constructor. To fulfill this level of responsibility, educators must be cognizant of their position within society. Today, generating such proficient educators represents a significant obstacle for governments worldwide. The inaugural education policy of the twenty-first century is National Education Policy 2020. NEP 2020 seeks to rectify a multitude of escalating developmental disparities within our nation.

(Misra & Tyagi, 2021) The current global demand is for quality education. Indeed, the caliber of educators significantly influences the overall character of an educational system. Teachers serve as critical junctures that suspend the entire educational system. The learning processes of students and the classroom environment are both significantly impacted by teachers (OECD, 2010). When it comes to increasing student achievement, one of most crucial factors is the expertise of the instructors.

(Bala & Rani, 2022) Education serves as the conduit through which individuals' personalities can be profoundly transformed by fostering in them the capacity for introspection, enlightenment, and critical inquiry. The realization of our potential is facilitated by education, which contributes to our overall growth and development. In this age of scientific and technological progress in every aspect of life, innovative practices and approaches are crucial for gaining a deeper comprehension of the teaching and learning process. It is particularly crucial in context of teacher education, which is concerned with skill-

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based education for prospective educators, that all aspects of training, be they theoretical or practical, be integrated.

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(Jana & Chattopadhyay, 2023) Based on the author's personal experience with teacher education and the National Education Policy 2020, the research paper "Teacher Education: in Light of NEP2020" incorporates pertinent studies, research papers, articles, and research papers to shape its content and substance. In addition to analyzing the fundamental tenets of Teacher Education as delineated by NEP 2020, this paper seeks to illustrate the vision and mission of the Teacher Education as outlined in NEP 2020. This research paper undertakes a critical examination of various challenges, barriers, and impediments that may arise during the implementation of the suggestions that are made for Teacher Education put forth by NEP 2020.

(Laltlansangi, 2023) Education is among the most essential pursuits an individual must undertake if they are to lead a progressive and harmonious existence. Formal, informal, or non-formal education may be obtained through various channels. It also equips an individual with the ability to coexist harmoniously with oneself and others. Teachers have a substantial impact on the formation and maturation of an individual's mind. Consequently, teaching emerges as a highly significant vocation, and the NEP 2020 further underscores specific rationales for providing teachers with essential accommodations, including financial and academic support.

(Babu, 2023) NEP 2020 serves as the inaugural education policy of twenty-first century and replaces the National Policy upon Education, which was established in 1986 and is now 34 years old. With the intention of fostering a dynamic knowledge base in India, our objective is to enhance inclusivity, flexibility, and interdisciplinarity in high school and college education while also recognizing and appreciating the distinct capabilities of every student in the twenty-first century. Society must be transformed into a global superpower of knowledge.

(Rahman, 2023) In addition to implementing a substantial overhaul of the nation's educational framework, the National Educational Policy 2020 has also established a framework to support the ongoing professional development of educators. Without teachers' expertise and information regarding the most recent innovations and developments in their field, knowledge dissemination and the holistic development of learner are inconceivable, according to NEP 2020. Annually, the policy mandates that educators engage in a minimum of 50 hours of continuing professional development (CPD).

(Sharma, 2023) India boasts one of the most substantial educational workforces in the world. Concurrently, teacher shortage and the standard issues have persisted in both the public and private education sectors. The caliber of educators directly influences the standard of schooling; consequently, it has emerged as a primary policy consideration at the national level. The inadequate nature of the current provisions for in-service training and education for teachers has been acknowledged in a number of policy-level documents.

(Waris & Shaheen, 2024) The influence of teaching, an enduring element interwoven into the very structure of education, is immense. Dedicated individuals who are esteemed for impacting young minds and constructing brighter futures serve as the foundation of effective educational systems. By bridging the gap between prior understanding and future potential, educators are the architects of thriving educational environments, both in the classroom and in the community. Their influence on both individuals and society solidifies their position as catalysts for advancement, perpetually indispensable for the progression of education. Despite fluctuations in the obligations, expertise, and educational prerequisites of practitioners, the indispensability for competent educators has endured across the annals of time.

(Sabar, 2024) The National Education Policy (NEP) 2020 of India emphasizes the pivotal significance of educators in fostering continuous professional growth and attaining academic excellence. In order to effectuate a transformation within the Indian education system, the policy was formulated. The significance of the NEP-2020 framework for continuous professional development (CPD) of educators in enhancing academic standards is discussed in this article. An annual completion of 50 hours of CPD across diverse modalities is mandated by NEP-2020 for educators. The objectives of CPD are to foster a commitment to continuous learning, accommodate diverse student populations, remain up-to-date with evolving educational trends, and improve teaching skills.

(Bera, 2024) The "National Education Policy" (NEP-2020) represents India's inaugural educational policy of the twenty-first century. The first education policy was established in 1968, and the "National Education Policy" was implemented in 1986, marking the second. Furthermore, in the year 2020, National Education Policy was officially established. It is merely the final one education policy implemented by India since its independence. The objective of NEP-2020 is to achieve universal education via pre-school to secondary school by 2030, with 100 percent GER in schools.

3 Conclusion

NEP 2020 acknowledges that in addition to pedagogical knowledge, teachers will need training in high-quality content. Approaches are provided at the end of the paper that offer a glimpse of how the NEP has derived lessons from international practices in order to improve the quality of education. The paper has outlined NEP 2020 emphasis on teacher professional development and training via recruitment and ongoing professional development, emphasizing the significance of skilled teachers through a variety of programs and facilities to maximize these practices.

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NEP 2020 and Skill Development: Bridging the Gap between Education and Employment

Dr. Veerabhadraiah C^{1*}

¹Associate Professor of Law, B.M.S.College of Law, Basavanagudi, Bangalore-19.

Abstract

The National Education Policy 2020 will function as a comprehensive overhaul of the educational system with the aim of enhancing the employability of individuals in the coming years. The NEP 2020 underscores indispensable attributes that contribute to a gratifying professional trajectory, thereby emphasizing the significance of education in equipping students with said skills. The NEP 2020 places emphasis on the significance of education in equipping students with the necessary abilities. The paper examines the factors that contribute to the lack of employability among Indian graduates and assesses the steps that must be taken to address this critical issue by effectively implementing the National Employment Policy (NEP).

Keywords: NEP 2020, Employment, Government, Gaps, Skill.

1 Introduction

Individuals' and society's economic output may be significantly augmented by the accumulation of skills. Individuals with diminished skill sets are disproportionately disadvantaged due to their increased likelihood of experiencing unemployment or being confined to low-paying, low-skilled jobs. Skills possess the capacity to empower individuals to engage in respectable employment and improve their overall welfare, thereby exerting a significant influence on social conduct. Knowledge and abilities serve as the catalysts for both the economic expansion and societal progress of any nation. Indeed, skill development investments can motivate nations to allocate resources towards social welfare initiatives.

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Inadequate workforce skills can result in severe repercussions for individuals, societies, and nations.(Chaurasia & Veeriah, 2023)

Skill can serve as the pivotal factor in granting equitable opportunities to the most marginalized and disadvantaged sectors of society. Elevating the social hierarchy requires providing neglected and disadvantaged segments of society with equitable opportunities for education, training, and employment. As India advances in its transition to a "knowledge economy," it becomes progressively more critical that the nation prioritize skill development, with a particular emphasis on skills that are applicable to the evolving economic landscape. In the current dynamic labor market, employers are in search of individuals who possess practical skills that are in line with the demands of the industry, in addition to academic expertise. Research in this field can offer valuable insights into the skill sets that are currently in high demand and the ways in which opportunities for skill development can help bridge the divide between academic study and the workforce.

1.1 Employability with Nep 2020

1- In agriculture

The NEP 2020 has unearthed strategies to revitalize and enhance the state of rural education in India. Rural colleges comprise approximately 9% of all colleges in the United States, and enrollment within agribusiness as well as partnered sciences is less than 1% of all higher education enrollment, according to strategy report. The approach aims to address the limitations and characteristics of agribusiness and its affiliated fields in order to increase rural productivity through the utilization of more skilled graduates and professionals, innovative analysis, and market-driven growth linked to innovations and practices. The fundamental concerns of our expanding society are food sufficiency, environmental degradation, declining land productivity, and environmental change.

However, agricultural education will undergo a transformation in focus to equip students with the skills necessary to analyze and apply local knowledge, conventional wisdom, and emerging technologies. It is past due to use the internet and technology in farming if we want to unlock new possibilities. Enhancing access to both established and emerging markets for farmers and facilitating extension services are two of the potential benefits that may result from the implementation of technological advancements that boost agricultural labor productivity.

2- Technical skills will enhance the market

Reports indicate that over 121 million Indians are now without employment, according per Centre for the Monitoring the Indian Economy. This figure is largely attributable to the dearth of education and essential skills among job seekers. Undergraduate programs in fields like genomic studies, the field of biotechnology nanotechnology, neuroscience, and artificial intelligence (AI)—which are rapidly becoming popular—will be a part of the NEP 2020's renewed emphasis on technical education. This will help students become more marketable to potential employers and will foster an entrepreneurial ecosystem that can meet the demands of digital India and beyond.

3- An increased effort to revive our legacy and culture

A third noteworthy perspective within our country has been the failure to employ reasonable precautions to safeguard our heritage and culture. A large number of historical sites, art galleries, foundations, and exhibition venues now rely on trained staff to carry out their missions. The advent of professional opportunities in these domains will inspire more students to pursue advanced degrees in aesthetic sciences and culture. One of the primary rationales why young individuals abandoned their humanities pursuits is the generally diminished probability of securing respectable employment. Students should be able to learn about the rich cultural diversity of India from the ground up, according to the NEP 2020. The "Ek Bharat Shrestha Bharat" course will entail the identification of one hundred voyager objections within the nation. Academic establishments will dispatch pupils to investigate these objections alongside their distinctive experiences, philosophical stances, traditions, indigenous scripts, and information with the intention of enhancing their comprehension of these areas. More wonderful job opportunities may arise as a result of these endeavors and degrees in higher education in the arts, languages, and humanities.

4- Building of new genre for job seekers via Translation and Interpretation

An progressive development acknowledged by the NEP 2020 is the significant progress made in the country's interpretation and comprehension efforts to ensure that high-quality written and spoken materials, as well as significant educational resources, are available to the general public in various Indian and foreign languages. In pursuit of this objective, the Indian Institute for Translation and Interpretation (IITI) will be established. This type of organization would provide substantial assistance to the nation and employ a variety of multilingual language as well as subject experts, as well as interpretation and comprehension specialists, who would aid in the development of each and every Indian language. Additionally, technology will be employed by the IITI to aid in its translation and interpretation efforts. In light of the dynamic nature of the business environment, NEP 2020 delineates the imperative for enhancements in addition to the overarching approaches to learning. The approach is guided by an advanced understanding of education that prioritizes experiential learning over mere enjoyment. Young pupils ought to be an excellent alternative for the contract economy, as the strategy foresees substantial progress toward erasing any gaps between the current state of knowledge and what is anticipated for the following age.

1.2 Filling the gaps in education system

The purpose of education is to facilitate the acquisition of knowledge, enlightenment, and the pursuit of gainful employment. Desperate action is therefore required to address the current deficiencies in our educational system in order to rectify the issue of graduates' low employability. In accordance with NEP 2020, the policymaker has formulated a number of objectives to increase employability.

1- Skill based education

In India, skill-based education is not an option but a necessity due to the persistently high demand for competent professionals and the comparatively low inclination to acquire new skills. In addition to

possessing the necessary subject knowledge and interpersonal skills, a graduate must also be interview-qualified. According to a survey report¹³ on employability, 93 percent of Indian graduates with advanced professional degrees are deficient in employability skills. This enormous disparity could be narrowed through the advancement of skill-based education at the tertiary level. Numerous institutions and organizations, established by the Indian government, provide skill-based education in an effort to close the employment disparity. The Skill Development Bureau, the National Skill Development Corporation, and the "National Vocational Education Qualification Framework" are a few of the government initiatives designed to promote the application of expertise and skills for the purposes of social progress and economic expansion. The public ought to be informed regarding these governmental initiatives.

2- Revamping Curriculum of the colleges

A set curriculum eliminates the opportunity for students to explore new concepts, abilities, and innovations, as they are required to memorize the syllabus in order to earn grades. An open curriculum encourages innovation, unfettered thought, and creativity.



Figure 1 Ways to Enhance Employability under NEP2020 (Sharma & -, 2023)

3- Soft Skills can Bridge the Employability Gap

Lack of interpersonal skills is the primary barrier student's face when attempting to obtain employment. Numerous recommendations have been put forth regarding the enhancement of employability among Indian pupils through the cultivation of soft skills.

4- Conduct employability assessments and training programs

According to some reports, incoming freshmen are inadequately prepared to begin their university studies. Students frequently lack employability skills which ought to have been taught in schools, including but not limited to fundamental computer literacy, rudimentary mathematics, English reading proficiency, and deductive reasoning. These are prerequisites for college. It is recommended that a fundamental skills assessment be administered to all incoming pupils. Institutions can increase the graduation rate by offering three to six-month training programs in students' areas of deficiency, based on the findings.

5- Institutions should be measured in terms of outcomes

Evaluation of outcomes ought to be the foundation of policy. Institutions have conventionally been assessed based on inputs such as faculty quantity, qualifications, infrastructure, and student body composition. However, in addition to these established metrics, an evaluation of an institution's performance should consider outcomes such as student achievement and employability.

6- Reform college examination system

The efficacy of the examination system implemented in our institutions of higher education is inadequate. Even individuals lacking the necessary expertise in subject can successfully complete these examinations and achieve high scores. Therefore, a combination of theoretical, conceptual, and application-based inquiries should comprise the examination.

7- Encourage internship programs and push project-based learning

Student's exposure to the industry is limited. A mere 40% of students participate in internships, and an even smaller 36% undertake initiatives that extend beyond their mandatory coursework. Research laboratories, academic departments, and the government should all support internship programs, which facilitate more project-based learning for students.

8- Faculty development and continuous assessment programs

HRDCs encounter difficulties in their efforts to raise awareness among the instructing faculty. It is recommended that HRDCs be acknowledged as primary teaching support centers that offer comprehensive training to enhance teaching effectiveness. Moreover, rather than associating attendance at these training modules via lecturers' promotions, they should be required to attend them immediately upon joining the faculty. This would ensure that instructors commence their classes equipped with essential delivery skills and subject matter expertise. Undergraduates' evaluations of the instructor's instructional quality should be considered as one of criteria for career advancement.

1.3 Students and Recruiters Perspective

1- Students' perspective

HRDCs face challenges when attempting to increase awareness among the faculty members who are instructing. Recognizing HRDCs as main centers for teaching support that provide extensive training to improve teaching effectiveness is highly encouraged. Furthermore, instead of linking lecturers' promotions to their attendance at these educational modules, they ought to be mandated to participate in them promptly upon their appointment to the faculty. By doing so, it would be guaranteed that educators begin their courses with fundamental knowledge and abilities pertaining to the subject matter. The assessment of an instructor's instructional quality by undergraduates ought to be taken into account as a factor in determining career progression.

2- Recruiters' perspective

Recruiters encounter the same difficulty when it comes to choosing the most qualified individual for the advertised positions. These businesses are affected in two ways:

- Companies utilize aptitude tests to determine the appropriateness of potential employees, supplementing the evaluation of personal qualities derived from work experience, internships, and positions of responsibility, among other factors.
- They invest significantly in training as part of the onboarding procedure in order to acquaint the chosen candidates with their particular job responsibilities.

1.4 The extent of the government's NEP 2020 policy benefits

A total of approximately 700 crores Crores has been allocated for funding experimental projects, of which each participant will be responsible for INR 7,300 in operational expenses. With the exception of those that operate under a fee-based paradigm, all Skill Hubs qualify for scheme financing. The Talent Hub initiative was introduced through the PMKVY 3.0 program. Regular Samagra Shiksha should extend to children who are enrolled in school, as the Skill Hub Initiative pilot phase specifically targets dropouts and individuals who are not in education.

Skill Hubs, which have been co-opted from the vocational and education systems, involve the following ministries: Ministry of Rural Development, Ministry of Micro, Small, and Medium Enterprises (MSME), as well as Ministry of Electronics and Information Technology (MeitY). Participation is determined by predetermined selection criteria, which may include, but are not limited to, the following: Schools (both public and private, government-funded and privately owned) Initiatives and processes implemented by the Indian government are advantageous for skill development.

Schemes of National Skill Development Corporation (NSDC)

- PMKVY stands for Pradhan Mantri Kaushal Vikas Yojana.
- Rozgar Mela.

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- PMKK stands for Pradhan Mantri Kaushal Kendras.
- Scheme for Capacity Building.
- Udaan.
- Higher Education and School Initiatives.
- The International Skill Centers of India.
- PDOT stands for Pre-Departure Orientation Training.

Schemes of Director General of Training (DGT)

“Craftsmen Training Scheme

Crafts Instructor Training Scheme

Apprenticeship Training under the Apprentices Act, 1961

Advanced Vocational Training Scheme

Vocational Training Programme For Women

Schemes for Upgradation

Flexi MOUs

STRIVE

Initiatives in the North East and LWE Regions

Trade Testing

Current Initiatives in the DGT Landscape

Dual System of Training

Polytechnic.”

Schemes related to Entrepreneurship: Pradhan Mantri ‘YUVA’ Yojana

“Skill Loan Scheme

Indian Institute of Skills

SANKALP

Academic Equivalence to Vocational Qualifications

Aspirational Districts

Swachh Bharat Abhiyan

Technology Initiative.”

2 Literature Review

(Bano & Vasantha, 2019) Assessing, recognizing, and evaluating an individual's employability creates a challenge. Employability pertains to an individual's capacity to obtain and sustain employment on the basis of their qualifications and skills. Individuals have the ability to transition within the labor market workforce and recognize their own potential. Determining the approaches or strategies that can be utilized to close the employability skills divide in higher education is the primary aim of this research. Additionally, the advantages of narrowing the employability disparity in the Indian economy were emphasized in the paper. The study is founded upon a conceptual framework. Furthermore, the data was obtained from secondary sources of the information.

(Chowdhury et al., 2022) As a significant socialization agent, education is instrumental in effecting positive behavioral changes among compatriots. Developing nations, such as India, must implement policies that guarantee the provision of quality education throughout the entire territory in order to foster the growth and development of their human resources. Advancements in technology and science, coupled with innovative approaches to industrialization and market-driven economic forces, have introduced a paradigm shift in the fundamental goals of education. Consequently, the ultimate emphasis should be on skill development and training for the workforce. Thus, there is an urgent need for skill-based training that equips young people with professional competence. By means of vocational education's extensive reach, pupils can be enlisted in this field, and an inventive and proficient workforce can be acquired.

(Kumar, 2022) Assembled in accordance with the aspirational objectives of students in the twenty-first century, National Education Policy 2020 advocates for a comprehensive overhaul and revision of all facets of education, including its governance, regulations, and structure. As per the policy, a minimum of fifty percent of students enrolled in higher education and secondary schools shall be exposed to vocational education by the year 2025. Education centered on the development of skills is its definition. Technical education contributes to economic expansion.

(Sharma & -, 2023) Alongside a lack of qualified labor, unemployment stands as the most significant obstacle in India. However, the majority of the time, issue is not the job's unavailability, but rather a disparity or deficiency in the necessary skills to perform the position. National Education Policy 2020 will function as a comprehensive overhaul of the educational system with the aim of enhancing the employability of individuals in the coming years. The NEP 2020 underscores indispensable attributes that contribute to a gratifying professional trajectory, thereby emphasizing the significance of education in equipping pupils with said competencies.

(Sharma & Neetika Trivedi, 2023) Alongside a lack of qualified labor, unemployment stands as the most significant obstacle in India. However, the majority of the time, issue is not the job's unavailability, but rather a disparity or deficiency in the necessary skills to perform the position. National Education Policy 2020 will function as a comprehensive overhaul of the educational system with the aim of enhancing the employability of individuals in the coming years. The NEP 2020 underscores indispensable attributes

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that contribute to a gratifying professional trajectory, thereby emphasizing the significance of education in equipping pupils with said competencies. The NEP 2020 places emphasis on the significance of education in equipping students with the necessary abilities.

(Lowe & Galhotra, 2023) This scholarly article undertakes an exhaustive comparative examination of rural education reforms in India, specifically comparing the modifications enacted prior to and subsequent to the implementation of National Education Policy in 2020. The principal aim of this research is to evaluate the consequences of NEP 2020 on rural education through an analysis of the significant policy changes, ramifications, and results within rural educational environments. Prior to the National Education Policy 2020, rural education faced numerous obstacles, such as insufficient infrastructure, restricted availability of high-quality education, and substantial discrepancies in academic achievements between rural and urban regions. In an effort to tackle these concerns, the NEP 2020 implemented a sequence of paradigm-shifting reforms. In order to accomplish this, the research utilizes qualitative interviews with critical rural education stakeholders.

(Gedar & Yadav, 2023) A fundamental paradigm shift in the current education system is initiated with the implementation of New Education Policy 2020, which prioritises skill-based education over learning-based education. Transitioning to vocational education, also known as skill-based education, in the sixth grade will pique students' interest in wide range of competencies. This paper examines the NEP-addressed topic of skill-based education and the potential employment level implications of implementing it during the middle as well as secondary school years. The purpose of this paper is to calculate the employment-to-unemployment rate among young people who have earned a graduate degree through the current educational system. The research employs a secondary method of data collection and is descriptive in nature. The issue that "National Skills Qualifications Framework" attempts to resolve is the lack of distinct pathways to higher education for a significant number of students who graduated from vocational education. As a consequence, these individuals were unable to advance vertically.

(Lukose, 2023) National Education Policy (NEP) The government has taken a significant step in 2020 to restructure the education system in response to the changes brought about by the pandemic. The policy emphasized the importance of skill-based education for students, enabling them to make informed decisions regarding their future. The technological revolution, colloquially referred to as the "4th industrial revolution," is causing profound and far-reaching transformations in society, labor, and interpersonal dynamics. By turning our kids into real global resources, NEP aims to make school and college curricula more skill-oriented by encouraging innovation and curiosity among young learners.

(Kaur, 2024) The National Education Policy 2020 in India places significant emphasis on the improvement of skills via vocational education as a means to address the disconnect between conventional education and the demands of the contemporary labor market. The objective of the policy is to incorporate vocational education into the conventional education system, emphasizing a more practical and experiential approach to acquiring knowledge. This study investigates the fundamental components of the NEP 2020, with a specific emphasis on the improvement of competencies via

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vocational education. This paper offers a thorough analysis of the transformative capacity of vocational education as outlined in the NEP 2020. It delves into the difficulties that may arise during the implementation process and proposes feasible resolutions.

(Kanungo, 2024) This article conducts a critical analysis of the National Education Policy (NEP) 2020 of India, evaluating its capacity to accomplish Sustainable Development Goal 4 of the United Nations regarding quality education. This analysis underscores the historical backdrop of India's education system, delineating obstacles pertaining to accessibility, fairness, and memorization. The expanding labour market of the twenty-first century and the necessity to adequately prepare graduates for this market underscore the pressing nature of reform. The paper subsequently examines the provisions of NEP 2020 and establishes a connection between them and the five objectives of SDG 4: opportunities for lifelong learning, universal access, fairness, foundational math and literacy, and competency-based learning.

(Choure & Singh, 2023) Education is the process of molding an educated person's mind, heart, and hands. Education encompasses skill development in addition to information processing in this context. The shifting demands of society and technological advancements in the twenty-first century are influencing a transformation in the goals and objectives of education. In order to augment the employability of students, educational opportunities must be diversified, and the demand for proficient human resources is concurrently on the rise. In this regard, vocational education can often serve as a pivotal factor. It is the system of acknowledged and unacknowledged means of transmitting knowledge, skills, and competencies that improves the recipient's capacity to obtain employment in diverse sectors of the economy or establish themselves as self-employed individuals.

(Bhatnagar, 2021) According to the MHRD report, approximately 44.50 lakh students completed their BA, B.Sc., and B.Com. degrees in India in 2018-19. While 15% of students, on average, pursue higher education, the remaining balance promptly enter the job market upon course completion. The critical inquiry, however, is how many of them might find employment. Although there is a significant annual production of graduates, the most pressing concern confronting our education system at present is ensuring that our students are employable upon completion of their studies.

(Chaurasia & Veeriah, 2023) In India, skill development sparked a tremendous revolution. Since the inception of the skill India concept, an individual's capacity to acquire new skills has increased dramatically. The objective of Skill India as well as Transform India is to procure contemporary skills that are most compatible with the requirements of the market. Job growth results from the application of acquired skills by an individual. This research paper investigates the classifications of skill development programs accessible to students, ascertains the expectations and perceptions of students enrolled in such programs, and analyzes their level of satisfaction via them.

(Dash, 2024) The Government of India's recently unveiled Education Policy (NEP 2020) was an invigorating development and welcome respite from the global turmoil caused by the Covid-19 pandemic. The NEP 2020 announcement came as an absolute surprise to many. Numerous educationists

did not anticipate the modifications which NEP 2020 has proposed. While education policy has had an equal impact on both secondary and tertiary education, this article is predominately concerned with NEP 2020 and its implications for higher education. In addition, this article examines the impact of NEP's prominent characteristics on the current educational system.

3 Conclusion

The greatest issue facing India is both the lack of trained labor and unemployment. Hence, it is critical to formulate skill development frameworks that execute employment opportunities for individuals at the base of the economic pyramid while simultaneously addressing the demand for proficient labor. This paper describes how NEP, 2020 bridges the gap in Indian education system, how it relates to employment, and how the government implemented practices and schemes to bridge this gap.

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Transforming Education: Optimizing Learning Environments through the Fusion of Signal Processing and IOT

Sri Harsha Grandhi^{1*}

¹*Intel, Folsom, California, USA.*

Abstract

In the Indian context, the New Education Policy (NEP) of 2020 is an innovative blueprint that foresees a fundamental transformation of the educational environment centred around technology. This paper investigates the symbiotic connection between technological integration as well as the NEP 2020, concentrating on IoT and signal processing. By adopting a learner-centric stance, the NEP 2020 considers the changing demands of twenty-first century. The objective is to establish an educational environment that is technologically advanced, flexible, and inclusive, with the capacity to accommodate diverse learning preferences. Furthermore, it promotes the early cultivation of critical thinking, creativity, as well as problem-solving skills.

Keywords: NEP 2020, IoT, Signal Processing, Technology, Higher Education.

1 Introduction

NEP 2020 is widely regarded as a groundbreaking initiative in the pursuit of educational advancement. The policy places significant emphasis on the integration of technology into the pedagogical process. In an effort to eliminate language barriers, policy places particular emphasis on multilingualism. Technology not only facilitates access but also plays a role in the planning and administration of

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education. The learner-centric National Education Policy endeavors to revolutionize the field of education in order to adequately address the demands of our interconnected global society. (Nidhi, 2022)

The "National Education Policy" 2020 is divided into four sections: part-I addresses school education; part-II pertains to higher education; part-III deals with the promotion of Indian languages, adult education, and online education; and part-IV oversees the policy's implementation. The shared goal is to facilitate a comprehensive development of the students through the assurance of foundational knowledge. It provides a diverse array of insights that will enable the stakeholders to make further creative contributions to society. In pursuit of this constructive metamorphosis, the policy proposes modifications to academic curricula, enhancements to digital infrastructure, development of robust and pertinent foundational competencies, and a departure from the conventional assessment system. Additionally, vocational education is incorporated into the policy at both the secondary and tertiary levels. Virtual learning was enabled by technology to facilitate teaching and learning throughout the pandemic. Under duress, the education system underwent a significant overhaul. The advent of the National Education Policy facilitated the exploration of novel opportunities. Efforts have been made to attain "self-reliance" in India, and it is not inaccurate to state that technology will play a significant role in that regard.

1.1 Technology Integration with Respect NEP2020

The incorporation of technology into the educational system is an essential element of the 2020-approved New Education Policy (NEP) in India. The NEP proposes an all-encompassing and student-focused educational framework that utilizes technology to augment educational accessibility, excellence, and adaptability. In light of the NEP, the following are some essential components of educational technology integration:

Digital Infrastructure: The NEP prioritizes the establishment of high-speed internet connectivity and other digital infrastructure in institutions of higher education and the public sector. The establishment of this infrastructure is critical in facilitating the efficient application of technology within the realm of education.

Online and Blended Learning: The NEP acknowledges the value that integrated and online learning models contribute. The promotion of digital content, e-books, as well as educational resources is encouraged in order to facilitate self-paced learning and supplement classroom instruction. This facilitates the provision of high-quality education to students, irrespective of their geographic placement.

EdTech Platforms: The NEP promotes the advancement and implementation of educational technology (EdTech) platforms and tools that serve to augment the process of teaching and learning. These platforms may provide tracking analytics, personalized learning experiences, and assessment tools.

Teacher Training: The necessity for teacher training within digital literacy and proficient utilization of technology in the classroom is recognized by the policy. The primary objective of training programs is

to provide educators with the necessary competencies to effortlessly incorporate technology into the curriculum.

Multilingual E-content: To guarantee access and inclusivity for students of disparate linguistic backgrounds, the NEP advocates for the creation of digital materials in a number of Indian languages.

AI and Machine Learning: The prospective applications of artificial intelligence (AI) as well as machine learning (ML) in educational decision making, including personalized learning, adaptive assessments, and information analytics, are acknowledged by the NEP. It fosters innovation and research in the aforementioned fields.

Virtual Labs and Simulations: Virtual laboratories and simulations are promoted as pedagogical tools to offer practical learning experiences to students in disciplines such as engineering and science, where access to physical laboratories may be limited.

Open Educational Resources (OER): Notwithstanding their cost, the NEP promotes the development and dissemination of open educational resources. This causes textbooks and other educational materials to become more affordable.

Assessment and Examinations: The promotion of technology-driven assessment methods, including online examinations and computer-based testing, is intended to increase the transparency and efficiency of evaluations.

Data Security and Privacy: In order to safeguard students' information in light of the increased prevalence of technology, the NEP stresses the significance of privacy and security of data in academic institutions.

1.2 Digital Transformation in Higher Education

Digital transformation within higher education pertains to the amalgamation of innovative approaches and digital technologies with the aim of augmenting instructional, learning, and administrative procedures within academic establishments. This entails the implementation of digital tools, platforms, as well as pedagogies in order to cultivate institutional innovation, enhance operational efficiency, and provide students with more engaging as well as personalized learning experiences. The prominence of digital transformation has increased as a result of its capacity to tackle the evolving requirements of students, the dynamic nature of the education sector, and the swift progressions in technology.

Numerous studies have underscored the advantages that digital transformation within higher education has to offer. Favorable consequences that digital transformation has on operational effectiveness, student support, and the educational experience at large. The proponents contend that the implementation of digital technologies as well as e-governance systems empowers institutions of higher education to optimize administrative procedures, augment accessibility, and cultivate innovation.

1.3 How internet of Things is Transforming the Education System

The technological revolution of the last few decades has been on par with the transformation that occurred during the middle Ages and into the present day. Nevertheless, the nascent stage of the most significant technological advancement may be the Internet of Things' convergence of the virtual as well as physical realms. Sectors including customer service and healthcare have been significantly impacted by the Internet of Things. Further reliance on connected devices by colleges is likely to have an ongoing impact on the education sector. An increasing number of students, educators, and administrators are engaging in closer collaboration and utilizing data to extract valuable insights as the Internet of Things further permeates the education sector.

A few instances of how Internet of Things is transforming the education sector are as follows:

Global networking among students and educators: Students can now engage in global interactions with their peers, mentors, and educators from the convenience of their homes or classrooms by utilizing connected devices that include interactive boards and digital highlighters. Digital scanners facilitate learning by transferring text to devices in a digital format. In a similar vein, interactive boards facilitate and expedite the learning process through the exchange, recognition, and reception of information.

Enhancement of textbooks: QR codes, or Quick Responses, have been implemented in textbooks. Students have convenient access to feedback, assignments, and supplementary knowledge resources through the utilization of QR codes scanned with smartphones.

Easier data collection and analysis: Supervising the movements and whereabouts of every single student in a college that contains thousands of them is an impossible undertaking. "Radio Frequency Identification" chips scan and record data stored on a tag affixed to an object. The data can be accessed from a distance of several feet, without the object being in direct line-of-sight with the RFID chipper. The implementation of cloud-based applications for automated data analysis has begun at academic institutions. By obtaining firsthand perspectives on subjects that they would otherwise be limited to studying in textbooks, students enhance their educational journey.

Higher collaboration in group projects: Academic establishments foster a culture of collaboration through the utilization of Internet of Things. The idea is that students may share their data to a shared workspace by using their cellphones to scan a RFID tag or a QR code.

Greater safety in campuses: Wristbands and digitized identification badges are utilized to monitor students, staff, and visitors. A server that stores information regarding the last-known locations ensures that only authorized individuals have access to every area of the campus. Additionally, they function as the digital wallets and facilitate frictionless transactions. Moreover, school buses are equipped with GPS monitoring, which not only ensures a secure commute but also informs parents of the location of their children.

More efficient Institute Management: Using IoT to streamline day-to-day operations enables instructors to devote more time to actual teaching. For instance, devices that detect students' presence in institute automatically obviate the need for attendance records and enable administrators to notify parents via electronic message. By collaborating with IoT sensors, they can employ security measures such as unlocking doors exclusively for verified visitors and notifying management of any unauthorized access.

1.4 Importance of IoT in Transforming Traditional Teaching and Learning Methods

Current teaching and learning methodologies could be fundamentally altered by the implementation of IoT in education. The ability to acquire and analyze data in real time regarding pupil behavior and performance is a notable benefit of the Internet of Things in education. Using this data-driven methodology, instructors are able to adapt their lessons in accordance with students' progress. Using IoT data analytics, educators will customize interventions for students who are falling short in specific subject areas. Moreover, the IoT enables the provision of personalized and flexible learning experiences. Students gain access to personalized learning materials and tools through IoT-enabled platforms and devices, which are tailored to their specific needs and preferences.

By encouraging active student participation, this individualized educational approach enhances student motivation and engagement. Additionally, the IoT facilitates collaborative learning and communication. The utilization of IoT-enabled devices and platforms facilitates enhanced collaboration among students, instructors, and parents. Students utilize IoT technology to collaborate on assignments, exchange resources, and partake in group projects. through the development of communication skills, social interaction, and group collaboration in this collaborative learning environment.

In addition to enhancing the learning environment, the IoT provides access to a multitude of tools and resources. By utilizing devices and platforms that are facilitated by the Internet of Things, students are able to access online educational resources, interactive learning materials,. Students are encouraged to engage in autonomous as well as self-directed learning through their increased access to a variety of learning resources, which facilitates their dynamic and engaging exploration of knowledge.

Signal Processing Impacts on Education in NEP 2020

Development of E-Learning Platforms: The utilisation of signal processing is crucial in the creation of advanced e-learning platforms. It guarantees uninterrupted and crystal-clear online lectures as well as interactive sessions by optimizing data transmission, thereby guaranteeing high-quality audio and video streaming. This technological progression enables active student participation in the learning process and enables instructors to deliver materials in an impactful manner.

Improved Accessibility: Particularly in remote and rural regions, signal processing enhances the quality and efficacy of data transmission across networks, thereby increasing the accessibility of educational content. By optimizing bandwidth utilization and improving signal quality, latency and connectivity challenges are mitigated, thereby ensuring equitable access to educational resources for students across all regions.

Real-Time Communication: Signal processing has facilitated real-time communication, which is among its most significant effects. Ensuring uninterrupted video and auditory interactions is of the utmost importance in virtual classrooms, which aim to replicate the atmosphere of a physical classroom. Active participation from students is possible during live lectures, where they can pose inquiries and engage in discussions without any delay.

Augmented and Virtual Reality: The development of augmented reality (AR) as well as virtual reality (VR) applications is supported by signal processing. By providing students with a virtual environment in which to investigate intricate scientific principles, historical occurrences, and geographic locations, these immersive technologies transform the learning process. Students of history and biology, for instance, can virtually traverse the empires of ancient civilizations and dissect a frog.

Data Analytics and Machine Learning: Sophisticated signal processing techniques enable the acquisition and examination of enormous quantities of educational data. This information facilitates the development of individualized learning experiences that are optimized for each student. For instance, learning management systems may employ this information to suggest particular resources or exercises that could assist a struggling student in enhancing their performance.

Intelligent Tutoring Systems: In development of intelligent instruction systems, signal processing is also mandatory. By utilizing machine learning and natural language processing, these systems are capable of comprehending and answering inquiries from students, thereby delivering prompt and individualized feedback. Students are able to learn at their own tempo and receive assistance when they require it with the aid of this ongoing support.

Professional Development Programs: The utilization of signal processing technologies facilitates the provision of superior professional development initiatives for educators. By utilizing webinars, online courses, as well as virtual seminars, these programs guarantee that instructors are consistently informed about the most recent pedagogical approaches and technological advancements. This continuous training enables educators to proficiently incorporate cutting-edge strategies into their instructional practices.

Collaborative Platforms: Enhanced signal processing facilitates the development of educator collaborative platforms. Educators are able to collaborate on lesson plans, share resources, and engage in the professional learning communities through these platforms. By virtue of being able to gain knowledge and insights from one another, this promotes an environment that values innovation and ongoing refinement.

2 Literature Review

(Meenakshi Sundaram, 2020) The Union Cabinet of India unveiled National Education Policy 2020 on July 29, 2020, with the intention of substituting the previous policy from 1986. Its objective is to modernize and advance the Indian education system to align with the benchmarks of international competition, with a transformation target of 2030. Rapid changes are occurring in the technological and environmental spheres of the world. The competencies and reservoir of knowledge possessed by

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contemporary students have undergone substantial transformations in the era of new education. Urgent changes were required to the educational infrastructure so that it could remain current with the requirements of the global education system. Numerous radical modifications were suggested for new education policy.

(K, 2020) Education is currently undergoing a similar transformation to other sectors as a result of the Internet of Things. Historically, learning has been confined to traditional settings such as classrooms, conferencing, and online seminars. However, with the advent of the Internet of Things (IoT), this trajectory began to gradually and consistently improve. Smart boards, digital highlighters, and electronic highlighters enable the digital transfer of printed texts to smartphones or other devices. Subsequently, interactive boards facilitate the reception, acknowledgment, and reciprocation of information, rendering learning not only engaging but also universally accessible.

(Malik et al., 2021) Education stands as a paramount necessity for every developing nation. As of 2020, India's education system is ranked 33rd globally. Similarly, the country places significant emphasis on education. As a result of technological and global developments such as COVID-19 and increased globalization, future of the work in all fields is undergoing a radical transformation. In order to meet the evolving demands of the international community, educational models must also be reevaluated. By 2025, India is projected to have the largest population of students aged 18 to 22 worldwide, according to an estimate.

(Majumdar & Mandal, 2021) In recent decades, the implementation of IoT in the realm of social science has significantly transformed the learning process. In recent times, technology has assumed a significant function within the realm of education. The implementation of this technology within the realm of education may be classified as a paradigm shift in culture. This research endeavors to investigate the functions of the Internet of Things in educational sector. Concurrently, emphasis has been placed on the challenges that Kolkata's educational institutions encounter when implementing this technology. In-depth observations and interviews were employed as research methodologies for the analysis. This study demonstrates that the utilization of this technology is more prevalent in nongovernmental organizations as opposed to governmental organizations.

(Pal & Dhillon, 2021) The primary objective of "National Education Policy" (NEP) 2020 is to establish a holistic framework and provide a comprehensive outlook on secondary and tertiary education within the nation. In order to construct a new system, this approach suggests reshaping and amending every element of educational structure, such as its governance and regulation. The proposed framework is influenced by Indian cultural practices and value systems, in addition to the desired results of education in the twenty-first century, including the "Sustainable Development Goals" (SDGs). 4. Positive societal contributions, fruitful as well as conscientious public participation, and individual accomplishment as well as edification are all made possible by the availability of a high-quality higher education. Through education, citizens must be capable of leading meaningful and fulfilling lives, working in productive environment, and attaining economic independence. Integrating a well-defined set of values and skills at each stage of education is therefore essential, from the pre-school through higher education.

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(Kumar, 2022) For nations all throughout the world, 2020 was a remarkable year. In addition to the Covid-19 pandemic, a significant development in India was the formulation of New Education Policy (NEP) 2020. Consistently, numerous committees have advocated for augmenting the education budget allocation to 6% of GDP; this has piqued the interest of scholars. The objective of this paper is to ascertain the focal points and issues of NEP 2020. NEP-2020 is a forward-thinking and progressive proposal that possesses both favorable and unfavorable characteristics. Its overarching goal is to ensure that all individuals have access to high-quality secondary and tertiary education, with an emphasis on comprehensive and research-driven advancements.

(Abrol & Jain, 2022) The "digital revolution" has significantly influenced numerous industries across the globe, including the realm of higher education. A substantial paradigm shift is occurring within higher education system of India as a result of the incorporation of e-Governance. This study investigates how India's higher education system is becoming digital and how e-Governance might change everything. An effort has been undertaken to confront the obstacles that conventional educational establishments in India encounter. Inefficiencies in the bureaucracy, reliance on manual procedures, and restricted availability of information and resources constitute these obstacles. The subsequent section emphasizes the advantages associated with adopting e-Governance, including heightened levels of transparency, optimized administrative procedures, improved accessibility to educational materials, and enhanced stakeholder collaboration.

(Nidhi, 2022) After a span of 34 years, the nation has obtained its inaugural education policy with the endorsement of the "Union Cabinet for National Education Policy" 2020. Significant importance is attributed to the incorporation of technology within NEP 2020, as it has the potential to facilitate comprehensive development. Additionally, regional languages will receive special attention in NEP 2020, as electronic courses will be created in those languages. Additionally, virtual laboratories will be established. Additionally, the establishment of a "National Educational Technology Forum" (NETF) is pertinent at this time. The NEP-2020 represents a groundbreaking initiative aimed at improving the education system.

(Vishwakarma & Singh, 2023) The purpose of this research is to examine the effects of NEP 2020's digitalization on society and quality of life. The sample size was determined through the use of convenience sampling and causal research methodology. Information for the study was gathered via a structured questionnaire from academics, students, and other participants. In the course of the research, 235 responses were gathered from the participants. Diverse statistical techniques, including exploratory factor analysis, confirmatory factor analysis, and linear regression, were utilized to analyze the responses.

(Kumari & Nigam, 2023) Integration of technology in education has emerged as a crucial component of educational reform worldwide. In the Indian context, the New Education Policy of 2020 is an innovative blueprint that foresees a fundamental transformation of the educational environment centred around technology. This abstract describes the NEP 2020 and its aims, strategies, and anticipated outcomes; it

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also delves into the positive link between technology integration and the policy. By adopting a learner-centric stance, the NEP 2020 considers the changing demands of twenty-first century.

(Narzary, 2024) The educational system in India has undergone a significant transformation with the implementation of New Education Policy-2020, which has contributed to the nation's improved economic and social indicators. The augmentation of public expenditure on education led to an increase in the budget allocation to 6% of GDP. The objective of the present study is to elucidate the ways in which the implementation of National Education Policy, 2020 will contribute to the reformation of education across various tiers in the Baksa district of Assam. The primary objective is to ensure that all students have equal and fair access to the highest quality of higher education and instruction through the implementation of a comprehensive and evidence-driven methodology.

(Bhattacharjee, 2024) This article explores the revolutionary potential of India's "National Education Policy NEP" 2020, emphasizing its capacity to reshape the educational domain across all levels of education, from pre-primary to university, by implementing the 5–3–3–4 curricular structure. Through the promotion of interdisciplinary methodologies, incorporation into the "Indian knowledge system" and prioritization of skill enhancement, the NEP2020 endeavors to cultivate human capital that is competitive on an international scale. The culmination of India's growth trajectory will be attained through the integration of her expertise in value-based management and the development of proficient human capital. Commencing in stages since 2020, the implementation of this policy presents substantial obstacles and remedies, including the requirement for comprehensive infrastructure development, teacher professional development, and the integration of digital and environmental literacy.

(Meylani, 2024) Focusing on the IoT's significance in revolutionizing conventional methods of instruction, this analysis delves into its implementation and consequences in the classroom. It analyzes the inception and historical expansion of the Internet of Things, as well as its evolution and pivotal moments in its acceptance. In addition to smart devices, augmented and virtual reality, gamification, as well as collaborative learning, the review investigates IoT platforms, tools, and technologies in education. The paper additionally examines the impact of the Internet of Things (IoT) on enhancing campus administration, encompassing energy-efficient technologies, intelligent campuses equipped with IoT infrastructure, and enhancements to safety and security.

(Banal & Sharma, 2024) The National Education Policy (NEP) comprises a collection of regulations or statutes enacted by a nation's government to guarantee adherence to educational benchmarks and foster holistic student growth within its educational system. It provides a structure for the development of instructional materials that functions as a foundation for the implementation and dissemination of curricula across various fields of study. Each nation has a unique education policy, which encompasses specifics regarding the curriculum, assessment methods, and overarching goals. Comprehensive in scope, NEP 2020 is an all-encompassing policy document that regulates curricular modifications, financing structures, institutional administration, and governance in secondary and tertiary education.

(Sawant & Manerkar, 2024) This research article investigates the potential for Internet of Things (IoT)

as well as blockchain technologies to collaborate in order to enhance the effectiveness of National Education Policy (NEP) initiatives within the education industry. Amidst the paradigm shifts occurring in education, the incorporation of these technologies presents encouraging resolutions to obstacles pertaining to data security, openness, and effectiveness. Utilizing blockchain technology for decentralized learning platforms, secure pupil data administration, and credential verification is a component of the proposed framework. Simultaneously, Internet of Things (IoT) devices are utilized to establish intelligent learning environments, initiate real-time monitoring of attendance, and augment the overall educational experience. Assuring the integrity of resource allocation and examination procedures, blockchain technology is implemented, whereas smart contracts streamline stakeholder agreements.

3 Conclusion

By incorporating new policies, the "digital transformation" of higher education in India has the capacity to significantly transform the sector. This research paper offers significant contributions to the field of education by examining the effects of signal processing and the Internet of Things (IoT) on the education system. It does so by utilizing the NEP 2020 as a catalyst for digital transformation in higher education in India, thereby cultivating a digital ecosystem which allows institutions and advances student achievement.

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Assessment Practices in the Digital Age: A Comprehensive Review

Dr. Rajeshwari Garg^{1*}

¹Assistant Professor, Department of Education Guru Ghasidas Vishwavidyalaya.

Abstract

The National Education Policy (NEP) 2020 in the country brings about a number of paradigm shifts within the educational system, with a specific focus on assessment methodologies. The objective of these modifications is to transition from conventional learning methods that emphasise exams to assessments that are more comprehensive, competency-driven, and ongoing. The following paper provides an analysis of digital learning and its transition from traditional approaches to a digital era via diverse assessment methodologies.

Keywords: NEP 2020, Education, Assessment practice, Ed-tech.

1 Introduction

Without policy education, one could say that a sailor is without sail. Establishing an education policy that provides guidance for the efficient and effective operation of the education system is, therefore, of the utmost importance. The education policy recently implemented in India is expected to bring about a paradigm transformation in the education sector and promote the holistic development of every citizen. NEP 2020 emphasises comprehensive reforms of the Indian education system. The new educational policy encourages comprehensive reforms in both the academic and social spheres of every student. If the goals of NEP 2020 and the new pedagogical framework for all students, including online and hybrid learning, are met, the gross enrollment ratio in the education sector is projected to reach 100% by 2030.

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With respect to the ages of 3 to 8, 11 to 14, and 14 to 18 years, the 10+2 curricular structure will be substituted with a 5+3+3+4 structure in accordance with the NEP 2020 emphasis on ECCE.

The PARAKH (Performance Assessment, Review, and Analysis of Knowledge for Holistic Development) policy outlines several key objectives: prioritising conceptual comprehension, fostering multilingualism and recognising the transformative potential of language in education, utilising technology extensively in teaching and learning, and encouraging regular formative assessment rather than summative evaluation. These efforts aim to position India as a global hub for knowledge. The 2020 New Policy seeks to accomplish an all-encompassing development of human capacities, including intellectual, aesthetic, physical, social, emotional, and moral. Promoting India as a global study centre that offers affordable, high-quality education in keeping with the illustrious history of Indian education.(Choudhary, 2023)

1.1 NEP 2020 and Digital Learning

Working to strengthen the institutional and intellectual capacities of ET, the National Educational Technology Forum (NETF) provides guidance to the federal and state administrations regarding the application of technology in education. Precisely delineate novel avenues for investigation and advancement. In order to accomplish SDG 8, online and digital education constitute the final element of the National Education Policy 2020. Although digital or online learning offers numerous benefits, it is not a viable substitute for conventional classroom instruction. Individuals who possess the capability to consistently magnify and refine content via digital methods, including learners, can benefit from the adaptability and customisation it offers. The proliferation of government initiatives, such as the Digital India campaign, and the rapid increase in internet penetration have created a conducive atmosphere for the transition to digital education.

PM e Vidya, which was recently introduced by Ministry of Human Resource Development, ought to be analogous to the aforementioned. All programmes will be connected to digital, internet, and broadcast education via this countrywide public relations effort. The inclusion criteria extend to online MOOCs on diverse subjects offered through SWAYAM, AIR, TV, and SSEISHA Vani (BSE Shiksha Vani), IITPAL (a platform designed to facilitate exam preparation), and NIOS-developed study materials tailored for students with disabilities. In a meticulous and exhaustive fashion, the MHRD shall distribute and promote every one of these e-learning domains.

The "National Educational Technology" Forum, an autonomous organisation, shall be formed to facilitate the candid interchange of knowledge pertaining to the utilisation of technology in an effort to improve learning, administration, planning, and assessment. The implementation of DIKSHA/SWAYAM and other technology-based educational programmes in K–12 and higher education will be more efficient. Higher education institutions (HEIs) will undergo significant obligations in conducting studies regarding disruptive technologies and creating educational materials and programmes, such as online courses in state-of-the-art disciplines.

1.2 A Paradigm Shift towards Digital Education

The NEP 2020 is an all-encompassing policy framework designed to prepare students to confront the challenges of the twenty-first century and transform the Indian education system. By fostering critical thinking, originality, and problem-solving abilities, the policy intends to revolutionise education from the perspective of the student. NEP 2020 recognises the capacity of technology to enable individualised and all-encompassing learning and outlines a number of digital education endeavours to realise this objective.

Integration of Technology in the Teaching-Learning Process: NEP 2020 promotes the incorporation of technological advancements into the pedagogical process at all educational levels. This includes the use of online platforms, multimedia resources, and digital tools to enhance and interact with classroom instruction.

National Educational Technology Forum (NETF): The policy suggests the formation of the NETF, an electronic technology (Ed-Tech) industry forum and collaborative platform for educators, policymakers, and knowledge-sharing. The objective of the forum is to assure the efficient implementation of technology within schools and to expedite its adoption.

Online and Blended Learning: NEP 2020 advocates for the advancement of integrated learning and online programmes, which would grant students the ability to obtain a superior education irrespective of their location or geographic limitations. This methodology facilitates individualised educational trajectories and caters to diverse learning preferences.

Digital Libraries and Resources: The policy prioritises the establishment of digital libraries as well as repositories housing open educational resources with the aim of furnishing students with a wide range of learning materials and encouraging independent study.

Teacher Training in Ed-Tech: Acknowledging the critical significance of educators in the realm of digital education, NEP 2020 underscores the necessity for all-encompassing teacher training programmes that focus on the integration of educational technology. This guarantees that educators are proficient in utilising technology to improve their pedagogical approaches.

1.3 The Role of Ed-Tech in Promoting Digital Literacy

Ed-Tech, an amalgamation of the words "Education" and "Technology," pertains to the integration and augmentation of the learning process through the utilisation of diverse technological tools and platforms. With respect to digital literacy as well as NEP 2020, educational technology (Ed-Tech) assumes a pivotal function in enabling students via the subsequent channels:

Access to Quality Educational Content: Educational technology (Ed-Tech) platforms furnish students with an extensive collection of academic materials, including simulations, virtual laboratories, and interactive textbooks as well as video lectures. The plethora of available resources accommodates a wide range of learning preferences and empowers students to investigate concepts through novel approaches.

Interactive Learning Experiences: Through the use of gamified learning modules, assessments, and interactive activities, EdTech tools encourage active learning. These methodologies promote active participation and inspire pupils to assume responsibility for their educational trajectory.

Digital Skills Development: Digital skills training, encompassing information literacy, security on the internet, data analysis, as well as digital communication, is frequently integrated into ed-tech platforms. Students acquire the necessary competencies to navigate the digital environment in a responsible manner, thereby establishing themselves as responsible digital citizens.

Personalized Learning: An inherent advantage of educational technology is its capacity to deliver individualised learning experiences. Algorithms for adaptive learning evaluate the strengths and shortcomings of students in order to customise course material and tempo accordingly. This guarantees that every pupil obtains the necessary assistance to achieve success.

Collaboration and Communication: Ed-Tech enables students, instructors, and colleagues to collaborate and communicate in a streamlined fashion. By utilising online discussion forums, video conferencing, as well as virtual classrooms, students are able to transcend geographical barriers and collaborate on projects, as well as exchange ideas.

Enhancing Teacher Effectiveness: Educational technology tools have a dual impact, benefiting students and educators. By employing data analytics, educators have the ability to track student development, pinpoint areas that require enhancement, and deliver timely interventions. Moreover, because administrative duties are streamlined by Ed-Tech, instructors are able to devote more time to instructional design as well as classroom participation.

Bridging the Digital Divide: Ed-Tech has the potential to play a crucial role in narrowing the digital divide through the provision of equal educational opportunities. Online learning has the potential to mitigate educational disparities by enabling students in remote and underserved regions to engage, provided they have access to affordable devices as well as internet connectivity.

1.4 Assessment practices in the digital age as outlined in NEP 2020

1. Holistic and Multidimensional Assessment

NEP 2020 emphasises a transition from summative, term-end examination-centered assessments to continuous, comprehensive formative evaluations. The purpose of these evaluations is to measure the comprehensive growth of kids, including the cognitive, emotional, and psychomotor aspects.

Formative Assessments: These are administered continuously during the learning process in order to furnish students and instructors with ongoing feedback. Quizzes, assignments, group work, as well as peer evaluations are all techniques.

Summative Assessments: Although these remain in existence, they have been reconceptualized to assess critical reasoning abilities rather than rote memorization.

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2. Competency-Based Assessments

The policy promotes the implementation of competency-based evaluations that assess students' comprehension and practical implementation of acquired knowledge. This strategy is predicated on:

Learning Outcomes: Assignable, quantifiable, and discernible results that pupils are expected to accomplish by the conclusion of every grade.

Skill Development: Critical thinking, problem-solving, ingenuity, and digital literacy are emphasised.

3. Use of Technology in Assessments

NEP 2020 promotes the utilisation of technology as a means to augment assessment methodologies. This consists of:

Digital Tools and Platforms: The implementation of online platforms to administer examinations, exercises, and additional types of evaluations. Analytics and immediate feedback are capabilities of these instruments for monitoring pupil progress.

Adaptive Assessments: AI-powered evaluations that adjust to the comprehension level of the pupil by delivering customised inquiries and assignments.

E-Portfolios: Digital portfolios serve as a platform for students to accrue and exhibit their work, thereby mirroring their academic progression and accomplishments.

4. Continuous and Comprehensive Evaluation (CCE)

NEP 2020 reexamines the notion of Continuous as well as Comprehensive Evaluation in order to guarantee its efficient implementation:

Continuous Evaluation: Consistent evaluations conducted throughout academic year, not solely during the final terms.

Comprehensive Evaluation: Incorporating diverse dimensions of growth, including scholastic pursuits, extracurricular engagements, and socio-emotional competencies.

5. Peer and Self-Assessment

Promoting peer and self-evaluation aids in the cultivation of self-control, analytical reasoning, and introspective behaviours among students. This procedure consists of:

Peer Review: Students providing constructive criticism on one another's work.

Self-Assessment: Students identify their own assets and areas requiring development as they assess their own performance.

6. Examination Reforms

Significant changes to entry and board exams are suggested by NEP 2020 to bring them into line with the new evaluation philosophy:

Reduced Pressure: Exams have been modified to alleviate students' workload, and multiple attempts are permitted to facilitate progress.

Modular Examinations: Subject selection and exam scheduling flexibility.

Integration of ICT: The implementation and assessment of examinations may incorporate "Information and Communication Technology" (ICT) to promote efficiency and transparency.

7. Teacher Training and Capacity Building

In order to execute these novel assessment methodologies, NEP 2020 underscores the necessity for:

Professional Development: Constant teacher training programmes familiarise instructors with contemporary assessment methodologies and digital resources.

Assessment Literacy: Facilitating educators' comprehension of competency-based and formative assessments so that they may devise and execute efficacious assessment methodologies.

8. Policy Support and Infrastructure

Infrastructure as well as administrative support are emphasised in the policy as crucial elements that ensure the successful execution of the following assessment practices:

ICT Infrastructure: In institutions and colleges, adequate technological infrastructure is required.

Policy Framework: To guarantee consistent and equitable assessment practices, educational authorities and government entities must provide support and establish clear guidelines.

2 Literature Review

(Aithal & Aithal, 2020) A nation must have a well-defined and forward-thinking education policy at the secondary and tertiary levels, as education is the engine of economic and social development. In order to optimise effectiveness, various nations implement distinct education systems that take into account their respective cultures and traditions, as well as distinct phases of development at the secondary and tertiary levels. The Education Policy recently unveiled by the Government of India is a product of the recommendations put forth by an expert committee presided over by Dr. Kasturirangan, a former chairman of Indian Space Research Organisation (ISRO). This paper examines and contrasts a number of higher education system-announced policies with the system that is presently in effect. An examination is conducted of the merits and anticipated ramifications of NEP 2020 upon the higher education system in India, in addition to a range of innovations. Finally, a number of recommendations for its successful execution in order to accomplish its goals are provided.

(S & Praseeda, 2020) This paper undertakes an examination of Indian National Education Policy 2022 (NEP) within Higher Education in relation to its international standing, drawing inspiration from the educational policies implemented in countries such as Australia, China, Germany, and Singapore. NEP 2020 supports comprehensive development by employing a multidisciplinary approach that incorporates

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digital learning, curriculum and course autonomy, advanced technology, business acumen, and global education.

(Madheswari, 2021) India has historically made significant and praiseworthy advancements in the domain of education. Since the introduction of the modern education system by Macaulay within the 20th century, Indian education has been influenced by his ideas. All modifications and reforms to education policy were founded exclusively on Macaulay's system. The National Education Policy, 2020 endeavours to overhaul the entire educational system, including research studies and early childhood education. In this age of technological predominance and the global transition to a digital environment, the education system requires an immediate and profound transformation. Furthermore, the discrepancy identified in the academic achievements of prestigious establishments in comparison to other establishments, as well as the global standing of Indian universities, requires an overhaul of education system.

(Kamaldeep & Sarna, 2021) In the midst of significant upheaval in the education sector caused by the "Fourth Industrial Revolution" and COVID-19, the Government of India's Ministry of Education issued the National Education Policy – 2020 (NEP-2020) on July 29, 2020, with the endorsement of the Union Cabinet. The NEP-2020 outlines the overarching vision for the future education system in India, which revolves around the principles of perseverance and self-reliance. With a distinctive multidisciplinary approach and a great deal of flexibility regarding credit transfers, curriculum, skills, and access, the NEP-2020 is more student-centric. This paper examines a number of praiseworthy advantages proposed by NEP, including structured pre-schooling as well as an early start to learning, the universalization of inclusive education, and a paradigm shift from memorization to active learning.

(Muralidharan et al., 2022) The "democratic welfare government" is equally committed to quality-oriented, impartial, and equitable education as it is to the establishment of educational institutions that serve as the foundation for universal education. SDG 4 of the Global Agenda, in fact, aims to improve quality of life and standard of living by guaranteeing quality and continuous education for all, regardless of geographical location, ethnic origin, religious affiliation, skin tone, or social class, among other factors. Consequently, India is highly motivated to achieve international objectives, and more significantly, this is due to the government's imperative to complete the reform of its education system in light of the profound economic, social, as well as scientific transformations that have occurred over the past two decades. The result of deliberation and analysis among various actors involved in social development regarding these intricate matters was the implementation of a policy initiative known as the "New Education Policy 2020".

(Sheeraz Ahmad Sheergugri & Malkeet Raj, 2022) As the primary engine of social and economic growth, it is common knowledge that every nation must have a predicated, forward-thinking, and precisely defined education policy. In consideration of their unique cultural and traditional backgrounds, various nations have implemented diverse educational systems. The "New Education Policy 2020", recently unveiled by the Government of India, aims to foster a vibrant and equitable knowledge society in a sustainable manner through the provision of high-quality education for all citizens. It is a commendable

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measure that will transform the education system in India into one that is contemporary, progressive, and equitable, thus bringing about a paradigm shift. New realities and conditions necessitate novel initiatives. In light of the recent surge in epidemics and pandemics, it is imperative that we remain prepared with alternative means of imparting high-quality education in situations where conventional and face-to-face methods are impracticable.

(Umachagi & Selvi, 2022) As the primary engine of social and economic growth, it is common knowledge that every nation must have a predicated, forward-thinking, and precisely defined education policy. In consideration of their unique cultural and traditional backgrounds, various nations have implemented diverse educational systems. The "New Education Policy 2020", recently unveiled by the Government of India, aims to foster a vibrant and equitable knowledge society in a sustainable manner through the provision of high-quality education for all citizens. It is a commendable measure that will transform the education system in India into one that is contemporary, progressive, and equitable, thus bringing about a paradigm shift.

(Swarup Das, 2023) This study examines the relationship between digital education, the psychological resilience of students, and their emotional health in the setting of higher education institutions. The paper specifically examines the resolution of mental health concerns among students and evaluates the effectiveness of National Education Policy of 2020 to create an educational environment and climate that promotes students' cognitive development and well-being. The detrimental impact of technology proliferation among students enrolled in higher education institutions (HEIs) on their mental resilience as well as emotional well-being is indisputable. Compulsive behaviours, anxiety, and depression, among others, are exacerbated by excessive digital screen time; nomophobia, or the fear of using a mobile device, further exacerbates these negative effects.

(Choudhary, 2023) The educational system in India has undergone substantial reforms and modifications under the National Education Policy 2020, which has placed an especially heavy emphasis on digital learning. In this research paper, effects of NEP 2020 upon digital education and learning in India are examined. The article provides an analysis of the pedagogical modifications required for successful digital learning. Additionally, it examines the key elements of NEP 2020 concerning digital education, along with the prospects and obstacles it presents. Furthermore, it assesses the integration of educational technology into the implementation of the policy and provides suggestions on how to accomplish this effectively. Policies should prioritise critical initiatives such as managing network and power disruptions, preventing unethical behaviour, and ensuring a secure online environment, according to the study. However, implementing ICT within remote areas is not without its challenges, which include inadequate internet connectivity, inadequate infrastructure, and restricted device access. India is a global leader in the IT sector and other innovative domains, including the implementation of ICT in education.

(A.Jagadeeshwaraiah, 2023) On this day, 73 years after gaining independence, India continues to strive for universal or 100 percent literacy. It is imperative to contemplate the vision and objectives that were established for an independent India. The overarching goal is to achieve equality in education as a nation. This demonstrates that India's educational system requires development. Dr. K. Kasturirangan, an

eminent scientist, presided over the implementation of new national education policy in the midst of the ongoing pandemic. By ensuring that every citizen has access to a high-quality education, National Education Policy directly contributes to the nation's slow but steady transformation into a thriving, equitable knowledge society. The Union Cabinet of India approved new National Education Policy on July 29, 2020. This policy establishes a comprehensive framework encompassing vocational training and elementary education, all the way up to higher education, in both rural and urban areas of India.

(B & N, 2024) The educational system in India is a fusion of modernity and tradition, contending with obstacles while adapting to the requirements of an ever more dynamic global landscape. Furthermore, it embodies a variety of pedagogical approaches that reflect the nation's abundant cultural legacy. An essential aspect of it is the establishment of a competitive atmosphere, which promotes scholarly rigour. Nonetheless, this frequently places students under tremendous stress, which negatively impacts their mental health. There are times when the prioritisation of academic performance diminishes the significance of practical abilities and comprehensive growth. Notwithstanding its difficulties, the education system in India possesses a resilient framework. Furthermore, endeavours such as National Education Policy 2020 endeavour to overhaul the system by emphasising curriculum flexibility, multidisciplinary learning, and skill-based education; this represents a turning point in the educational milieu of India. The rationale behind its implementation is multifaceted, mirroring the country's ambitions to establish an education system that is both inclusive and competitive on an international level. The purpose of the study is to emphasise the significance and function of the national education policy in establishing the education system in India.

3 Conclusion

The papers presented have illustrated the transition to the digital age as outlined in NEP 2020, the role of educational technology in fostering digital literacy to ensure that every learner is a proficient individual, and the policy's implementation of diverse assessment methodologies to achieve this objective. By utilising the Digital India Campaign, the nation is undergoing a comprehensive metamorphosis into a knowledge-based economy and digitally empowered society. The integration of technology into education will be essential for enhancing both educational processes and outcomes. Digital education constitutes the final element of the 2020 National Education Policy.

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National Education Policy 2020: Opportunities & Challenges

Dr. APV Appa Rao¹, Dr.L Malleswara Rao², Ch Sundar Singh³, P Ramakrishna Rao^{4*}

¹Associate Professors in Physics, Sri.Y.N.College (A), Narsapur, W.G.Dt, A.P, India..

Abstract

The nation of India continues to lead the international community in terms of economic development, equality, social justice, and national progress as a result of its consistent efforts to provide higher quality education to all. The Government of India's initial education policy for the twenty-first century is the "National Education Policy" (NEP), 2020. It aims to satisfy the nation's numerous, rapidly expanding development needs. The National Education Policy 2020 serves as a comprehensive framework that aims to revolutionise the education system in India by effectively tackling the emerging requirements and challenges of the nation's educational landscape. The policy incorporates a range of reforms and initiatives that seek to foster equitable access to high-quality education, equitable development, and a student-centered approach. It envisions a transition to a more comprehensive and adaptable education system that prioritises the development of skills, critical thinking, and creativity. Additionally, it emphasises the integration of technology, the encouragement of multidisciplinary learning, and the cultivation of an environment that fosters innovation and research. In its entirety, the National Education Policy 2020 delineates a comprehensive and audacious blueprint for the advancement of education in India. However, the effective execution of this policy will necessitate the continued and collaborative engagement of all pertinent parties—policymakers, educators, students, and parents—in order to achieve success.

Keywords: National Education Policy 2020, Higher Education, Quality of Education, Opportunities and Challenges.

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1 Introduction

The National Education Policy 2020 signifies a paradigm shift in the educational domain of India, with the objective of fundamentally altering the methods by which knowledge is transmitted and obtained throughout the nation. This extensive policy document delineates a vision for an all-encompassing and inclusive educational system that accommodates the varied requirements of students, spanning from elementary school to tertiary level. By prioritising improvements in quality, relevance, as well as accessibility, the policy establishes ambitious goals to furnish students with the necessary skills of the twenty-first century and adequately prepare them to confront the obstacles that will arise in an ever more interconnected global society. Further examination of the fundamental aspects and consequences of this seminal educational reform endeavour is warranted.

The National Education Policy 2020 offers several prospects, including the establishment of National Research Foundation to support and advance educational research, an emphasis on early childhood education, and a combination of vocational education with traditional mainstream education. Additionally, it advocates for the adoption of technological advancements in learning and the integration of multiple languages. Furthermore, the policy endeavours to establish a more adaptable and student-centric educational system, expand the utilisation of internet-based and blended learning, and enhance the calibre of teacher preparation. Nevertheless, the execution of National Education Policy 2020 encounters numerous obstacles, including the requirement for significant financial commitments towards education, insufficient resources and infrastructure, a scarcity of adequately trained educators, the difficulty of delivering high-quality instruction in remote and rural regions, and the necessity for efficient cooperation among diverse stakeholders. Moreover, irrespective of socioeconomic status or geographic location, the policy must ensure which education is affordable and accessible to all by addressing concerns of inclusion, accessibility, and equity.

1.1 Review of related research literature

“The education system relies on the policies drafted by the govt. To strengthen the base of curricula and to develop a scientific temper, the Indian govt. has drafted policies from time to time. Before NEP 2020, the Indian govt. has drafted two national education policies. This is the third education policy that came after a long period. Early childhood education has been integrated into regular school for the first time under the new policy. With increased use and deployment of current technologies, skill-based learning is being prioritized. From a global perspective, the National Education Policy 2020 aims to bring much-needed revolutionary changes to the Indian education sector. The NEP, 2020 envisions the holistic development of the education system (Pankaj Thakur, Feb,2023).”

1.2 Highlights of National Education Policy 2020

The government of India has put forth the National Education Policy, which aims to enlighten and motivate students, who are the architects of our nation's future, with an educated perspective. The policy has been meticulously designed with the intention of influencing the lives of all children in the country

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in a way that aligns with the aspirations and values of the twenty-first century, while preserving the richness of India's tradition and value system. An illustration of this is a previous policy that merely emphasised formality just prior to the internet revolution, whereas modern pedagogy employs technology-based and technology-enabled education to improve the quality of education, governance, and management. Twenty contents are recommended for inclusion in higher education per the new education policy.

1. “Governance reforms for quality education
2. Ranking of institutions and accreditations
3. Improving the quality of regulation
4. Space setting rules of Central institutions
5. Improving state public Universities
6. Integrating skill development in higher education.
7. Promoting open and distance learning and online courses.
8. Opportunities for technology unable learning.
9. Addressing regional disparity
10. Bridging gender and social gaps
11. Linking higher education to society
12. Developing the best teachers
13. Sustaining student support systems
14. Promoting cultural integration through language
15. Meaningful partnerships with the private sector
16. Financing higher education
17. Internationalization of higher education
18. Engagement with industry to link education to employability.
19. Promoting Research and innovation
20. New knowledge.”

India is home to a population of 1.3 billion individuals, of which 67 percent reside in rural areas. An ambitious and noteworthy endeavour aimed at reforming, enhancing, and achieving parity within India's educational-system is "National Education Policy" 2020. To ensure the effective implementation of this strategy, it is imperative to significantly optimise decision-making processes and reallocate financial resources in the coming months and years.

1.3 Objectives and Principles of the Policy:

The National Education Policy 2020 focuses on fostering inclusive and equitable education for all while prioritizing quality and relevance in learning.

1. Promoting Inclusive and Equitable Education: The policy aims to bridge the gaps in access to education, especially for marginalized communities, by promoting inclusive practices and reducing disparities.

2. Ensuring Quality and Relevance in Education: Emphasizing the importance of quality education, the policy seeks to make learning more relevant to real-world applications, preparing students for the challenges of tomorrow.

3. Structural Reforms in School Education: The policy introduces structural reforms in school education, including curriculum revisions and enhanced strategies for implementation.

4. Curriculum Revision and Implementation Strategies: By updating and restructuring the curriculum, the policy aims to make learning more engaging, interdisciplinary, and aligned with the needs of the future workforce.

5. Educator Training and Professional Development: Acknowledging the pivotal role of educators, the policy focuses on providing training and continuous professional development opportunities to enhance teaching standards and pedagogical practices.

6. Higher Education Reforms and Initiatives: In the realm of higher education, the policy envisions promoting research and innovation, as well as improving access and affordability for students across the country.

7. Promoting Research and Innovation in Higher Education: Encouraging a culture of research and innovation in higher education institutions is a key objective of the policy to foster a spirit of critical thinking and creativity among students.

8. Enhancing Access and Affordability in Higher Education\: The policy aims to make higher education more accessible and affordable by introducing initiatives such as scholarships, financial aid, and digital learning platforms to cater to a diverse student population.

9. Integration of Technology in Education: In a world where smart phones are practically an extension of our hands, it's about time education caught up. The National Education Policy 2020 brings in Digital Infrastructure to ensure no student gets left behind due to lack of connectivity. And with EdTech tools paving the way for personalized learning experiences, students can say goodbye to one-size-fits-all teaching methods.

10. Language Policy and Multilingualism: Diversity is the spice of life, and the National Education Policy 2020 celebrates it with a focus on Multilingual Education. By promoting different languages in the curriculum, students not only learn about cultural diversity but also gain a broader perspective of the world.

Opportunities of National Education Policy-2020: A comprehensive framework, National Education Policy (NEP) 2020 seeks to revolutionise the Indian education system. This phenomenon offers numerous prospects for educators, learners, and academic establishments. In light of National Education Policy 2020, the following are several significant opportunities:

1. **Holistic and multidisciplinary education:** The National Education Policy 2020 promotes a multifaceted approach to education, ensuring that pupils are afforded the chance to acquire knowledge in a diverse array of disciplines and cultivate an extensive repertoire of abilities. This will facilitate their development into multifaceted individuals and equip them to confront the intricate challenges that will arise in the twenty-first century.
2. **Skill development:** The National Education Policy 2020 places significant emphasis on the cultivation of proficiencies including communication, critical thinking, problem-solving, and creativity. Students are going to grow more employable as well as better equipped to thrive in a world that is undergoing accelerated change as a result.
3. **Flexibility and choice:** The "National Education Policy 2020" provides students with increased autonomy and selection with regard to the subject matter, modalities, and timing of their educational pursuits. Students will then be capable of customising their education to suit their specific pursuits and requirements.
4. **Technology integration:** National-Education Policy 2020 promotes the incorporation of technology at all levels of education in recognition of its significance. Students and instructors will be able to maintain contact and participate in novel and inventive learning experiences.
5. **Quality improvement:** The primary objective of the National Education Policy 2020 is to enhance the quality of education in India through the implementation of novel benchmarks, oversight mechanisms, and accreditation frameworks. This will guarantee that academic establishments deliver education of superior quality and that pupils are afforded an optimal learning environment.

2 Challenges and Future Implementations of the National Education Policy 2020

Among the obstacles and executions of the National Education Policy-2020 are the following:

1. **Implementation:** The implementation of the National Education Policy-2020 is among its greatest obstacles. The policy has an extensive scope and its implementation necessitates substantial financial commitments and infrastructure development. Collaboration among all relevant parties—including educational institutions, the private sector, and central and state governments—is imperative for the effective execution of the policy.
2. **Funding:** National Education Policy-2020 implementation necessitates substantial financial resources, but the policy document provides no explicit instructions on how such funds will be acquired. Although the policy makes reference to the creation of the National Research Foundation, the specific methods by which it will be financed remain ambiguous.

3. **Language policy:** In some jurisdictions, the National Education Policy-2020's proposal for a three-language formula has generated controversy. The potential consequence of the policy is the erosion of the nation's linguistic diversity through the imposition of a specific language.
4. **Teacher training:** Despite the policy's emphasis on the importance of teacher development and training, there are numerous obstacles to its implementation. It is necessary to redesign the current system of teacher education in order to accommodate the evolving demands of the education sector.
5. **Assessment system:** A novel evaluation system is suggested by the policy, which places emphasis on the comprehensive growth and progress of the pupils. People are worried that the new evaluation system would be difficult to execute, particularly in less-resourced rural regions.
6. **Inclusivity:** Although the policy seeks to ensure that education is accessible and inclusive for all, it faces a number of obstacles in its pursuit of this objective. There are numerous forms of inequality in the current educational system, including socioeconomic, regional, and gender disparities.
7. **Private sector engagement:** An issue exists regarding the potential for the policy's emphasis on private sector participation in education to exacerbate pre-existing inequalities and foster the commercialization of knowledge.

3 CONCLUSION

The nation's advancement the scientific, technological, social, and cultural progress of our nation is contingent upon the significance of higher education. Higher education as well as its institutions play a pivotal role in twenty-first century, necessitating that students enrolled in colleges and universities develop a well-rounded character that is both innovative and analytical, and which will manifest in their personal and social spheres. Overall, there are great potential for change in India's educational system with National Education Policy 2020, but there will be many obstacles to overcome before it can be fully implemented. A more inclusive and comprehensive approach to education may be achieved by adopting the policies outlined in the National Education Policy 2020, which have highlighted many issues plaguing India's educational system. Several difficulties facing the Indian education system have been identified in the National Education Policy 2020; implementing such approaches can assist in resolving these issues and promote a more holistic and inclusive approach to learning. It is imperative to confront these challenges in order to guarantee the effective execution of the "National Education Policy 2020" and to accomplish the objectives of revolutionising the education system in India.

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Aligning Higher Education with NEP 2020: Strategies for Implementation

Dr. Anil Kumar^{1*}

¹*Head of Department and Asst.Prof. P.G.Dept.of Chemistry, Sahibganj College Sahibganj.*

Abstract

The National Education Policy (NEP) 2020 implemented a paradigm shift in the Indian educational system. In the context of India, this article offers an exhaustive analysis of the implementation of NEP in higher education institutions (HEIs). An all-encompassing, multidisciplinary, and student-centric approach to education is emphasised in the NEP. This paper analyses the approaches that were taken to advance the education systems of HEIs.

Keywords: Higher Education, NEP 2020, Education, Strategy, Challenges.

1 Introduction

In order to promote education among the people of India, the Government of India has developed National Policy on Education. The policy applies to institutions and elementary schools in both urban and rural India. Prime Minister Indira Gandhi issued the initial NPE on behalf of the Indian government in 1968; Prime Minister Rajiv Gandhi issued the second in 1986; and "Prime Minister Narendra Modi" issued the third in 2020. The Union Cabinet of India, on 29 July 2020, granted approval to "National Education Policy" 2020, which delineates the overarching vision for the forthcoming education system in India. 1986's National Policy upon Education is superseded by the new policy.

The policy serves as an all-encompassing structure governing primary education, higher education, vocational training, and rural and urban areas in India. By 2021, the policy intends to have completely transformed India's education system. The implementation of the NEP language policy is left to the

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discretion of the individual states, institutions, and schools; it is merely an advisory and general guideline. The NEP 2020 regulates education policy in India in a number of significant ways. Its immediate objective is to increase state spending on education from approximately 4% to 6% of GDP.(Yadav, 2021)

An exemplary, considerate, versatile, and innovative student body must be the product of a quality higher education. It is imperative that the curriculum facilitates a comprehensive examination of one or more specialised subjects of interest, while also fostering the development of critical thinking, service-oriented thinking, intellectual curiosity, character, ethical as well as constitutional values, scientific rigour, and 21st-century competencies. These competencies should span various academic disciplines such as sciences, social sciences, arts, the humanities, languages, personal and technological subjects, and vocational training. Prominent provisions of the new education policy include the establishment of a "National Research Foundation" to provide financial support for outstanding scholarly research and efficiently seed studies at universities and colleges, the creation of multidisciplinary universities as well as colleges, with a minimum of one in close proximity to each district, and a reevaluation of student curricula, pedagogy, and evaluation practices to enhance the student experience. The primary challenges confronting the Indian higher education system consist of the following: compulsory separation of qualifications, promptly specialisation, and student migration towards restricted research domains; diminished emphasis on research at the majority of universities and schools; inadequate funding for competitive peer-reviewed academic research; and the presence of large affiliated universities that contribute to substandard undergraduate education.

1.1 Impact of NEP on Higher Education

1) Regulatory System of Higher Education

One major revision to NEP 2020 is the plan to establish the "Higher Education Commission of India" to oversee all forms of higher education in the country, with the exception of those pertaining to medicine and law. Typically, this will elicit the inquiry regarding the future of the current UGC and AICTE. The objective of HECI is to reform higher education sector; proposed legislation will partition the sector's academic and funding components. The new legislation stipulates that HECI shall have no pecuniary authority. The oversight of funding procedures, which were formerly the responsibility of the University Grants Commission, will be transferred to the Ministry of Education, formerly referred to as "Ministry of Human Resource Development". Nonetheless, it is anticipated that this modification will resolve the regulatory quagmire that has plagued India's higher education system.

National Accreditation Council for accreditation; "National Higher Education Regulatory Council for regulation"; Higher Education Grants Council for funding; and National Education Regulatory Council for standard-setting are the four independent verticals that HECI is anticipated to have. For education standards to be standardised, a single umbrella organisation has always been necessary; this has been the goal of a great number of educationists. This action is regarded as an appropriate stride towards optimising education policy. In order to uphold the standard of higher education, however, institutions

must be evaluated according to pertinent criteria such as research output, industry affiliations, placement rates, academic prowess, and more. The potential effects for the HECI's primary stakeholder, youth of India, could be substantial if this can be effectively executed.

2) Graded Autonomy and Graded Accreditation

One of the fundamental tenets of NEP 2020 is "autonomy and empowerment towards innovate," which proposes a progressive shift from affiliated colleges to autonomous establishments. The increased flexibility that autonomous institutions offer inspires hope for the improvement of curricula. Additionally, it specifies which autonomous degree-granting colleges have the capacity to transition into research-intensive or teaching-intensive universities with the appropriate accreditations, should they choose to do so. The declaration concerning the formation of interdisciplinary and research universities within the country evokes a revitalised sense of hope.

These academic institutions shall endeavour to offer Indian pupils a multidisciplinary curriculum on par with the existing IITs and IIMs. An additional noteworthy alteration suggested by the NEP 2020 is that the term "National Testing Agency" shall serve as an independent, authoritative, and preeminent testing body tasked with conducting entrance exams for higher education institutions' fellowships and graduate and undergraduate admissions. Due to the exceptional quality, scope, and flexibility of NTA testing services, these standardised entrance examinations will be accessible to the majority of universities, as opposed to the laborious task of developing their own by hundreds of universities. The burden on students, colleges, universities, as well as the education system at large will be substantially mitigated. Each university will exercise its own discretion in this regard.

3) Graded Accreditation and Graded Autonomy

As part of its "phasing out" approach from Affiliated Colleges to Autonomous Institutions, NEP 2020 promotes the idea of "empowerment and autonomy to innovate" among other vital components. The enhanced adaptability provided to autonomous institutions instills optimism regarding the enrichment of curricula. Additionally, it states that Autonomous degree-granting colleges have the potential to transform into Universities focused on research or teaching if they want to do so, provided they get the necessary accreditations. The proclamation regarding the establishment of research and multidisciplinary universities in the nation instills a renewed sense of optimism. These educational establishments will strive to provide Indian students with a multidisciplinary education comparable to that of the current IITs and IIMs. An additional significant modification proposed by the NEP 2020 is that National Testing Agency will function as a preeminent, authoritative, and self-governing testing entity responsible for administering entrance exams for graduate and undergraduate admissions as well as fellowships in institutions of higher education. As a result of NTA testing services' superior quality, breadth, and adaptability, the majority of universities will be able to utilise these standardised entrance exams, as opposed to hundreds of universities developing their own. This will significantly alleviate the strain on students, colleges, universities, and the education system as a whole. It will be the discretion of individual colleges and universities to utilise NTA assessments in their admissions processes. Additionally, it

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facilitates the seamless transmission of academic degrees and credentials by students to foreign universities.

4) Internationalisation at home

As a result of NEP 2020 granting access to foreign universities and colleges in India, domestic institutions are compelled to enhance the calibre of instruction they deliver. With the possibility of facilitating the establishment of campuses by foreign universities in India, the sector of higher learning is humming with activity. India boasts an extensive network of higher education systems, ranking among the largest globally, comprising over 40,000 colleges and 900 universities. However, India's higher education Gross Enrollment Ratio of 26.3% is considerably low in comparison to other BRICS countries such as China (51%), Brazil (50%), and European as well as North American nations, where the corresponding figures exceed 80%. India must attain substantial expansion in the realm of international higher education in order to sustainably develop its economy, which ought to be propelled by knowledge resources rather than natural resources. To accommodate a massive influx of students, India will reportedly require an additional 1,500 "higher education institutions" by 2030. For this reason, the Indian government intends to encourage Foreign Direct Investments and facilitate External Commercial Borrowing in order to bolster capital investment in the education sector.

5) More Holistic and Multidisciplinary Education

According to the NEP 2020, an interdisciplinary and holistic approach to education would work to cultivate a person's full potential in all area of their being: cognitive, affective, social, physical, and moral. This type of education will contribute to the development of individuals who are versatile and possess essential capabilities for the twenty-first century in various fields, including arts, languages, humanities, sciences, social sciences, along with professional, technical, as well as vocational domains; an ethical compass that encourages social involvement; interpersonal abilities that include effective communication, debate, and discussion; and a strong focus on a specific expertise or areas of study. The goal of the NEP 2020 is to ensure that by the year 2030, every district will have at least one significant HEI that offers a variety of academic programmes.

In pursuit of a comprehensive and interdisciplinary education, higher education institutions (HEIs) shall incorporate credit-bearing courses and projects pertaining to value-based education, environmental education, community engagement as well as service, and credit-bearing courses as well as projects in these areas. Climate change, pollution, sanitation, waste management, biodiversity conservation, sustainable development, wildlife conservation, and management of biological resources are all components of environmental education. Learning the universal human values of truth (satya), righteousness (dharma), love (prem), peace (shanti), nonviolence (ahimsa), a scientific temperament, citizenship values, and life skills is an essential aspect of a value-based education. Students will also participate in community service programmes and receive instruction in seva (service).

In response to the escalating interconnectedness of the world, Global Citizenship Education will be offered as a means to equip students with the knowledge and understanding necessary to actively

advocate for societies that are peaceful, tolerant, inclusive, safe, and sustainable. This programme is designed to empower individuals to appreciate and comprehend contemporary global challenges. In conclusion, research internships alongside faculty and scientists at their respective or other HEIs/research institutions, as well as opportunities for internships via local industry, businesses, artisans, and crafts persons, will be made available to students at all HEIs as part of a holistic education. This will enable students to actively participate in the practical application of knowledge and, in the process, enhance their employability.

6) The structure and lengths of degree programmes

Undergraduate programmes in all countries will be required to complete the programme within three or four years according to the "National Education Policy 2020" plan. It is possible to withdraw from the degree programme during this time frame. Academic institutions are obligated to award diplomas upon successful completion of two years of study, degrees upon successful completion of three years of study, and certificates upon successful completion of one year of study in a chosen professional or vocational programme. The academic scores will also be stored digitally through the establishment of a Academic Bank of Credit, which the Indian government will also support. This will allow academic institutions to finalise the credit calculation and incorporate it into the student's degree. This will prove beneficial for those who are compelled to discontinue the course in the middle. They are not required to restart the course from the outset; rather, they may resume it from the point they left off. While NEP 2020 advocates for higher education institutions to be granted autonomy in initiating PG courses, certain challenges may arise when it comes to devising one-year PG degrees for graduates of four-year UG programmes and two-year PG programmes for graduates of three-year UG programmes.

1.2 Strategy for Implementing NEP 2020 in Higher Education

1) Multidisciplinary and Holistic Education

Establishment of Multidisciplinary Institutions: The NEP 2020 promotes the conversion of established higher education establishments (HEIs) into institutions that encompass multiple disciplines. This necessitates that tertiary institutions provide an extensive array of courses and integrated curriculum, enabling learners to delve into a multitude of fields. The objective is to establish symphonies that offer a comprehensive curriculum encompassing various disciplines, including arts, science, commerce, as well as vocational education. By fostering this integration, an environment will be created in which students can acquire a comprehensive understanding of various domains, thereby augmenting their abilities to think critically and solve problems.

Flexible Curricula: Curriculum flexibility is essential for fostering a multidisciplinary approach, as it empowers students to select courses from a wide range of academic disciplines. Students will be able to pursue their passions and inclinations with greater freedom, resulting in a more engaging and individualised educational experience. Institutions will be required to establish frameworks that facilitate

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the smooth integration of disciplines, thereby encouraging interdisciplinary research and fostering the comprehensive growth of students.

Undergraduate Education: A four-year undergraduate programme with multiple termination options is implemented under the NEP. After one year, students are eligible to receive a certificate; after two years, they can obtain a diploma; and after 3-5 years, they can earn a bachelor's degree. In the fourth year, students will have the opportunity to engage in in-depth studies as well as assignments through a research-oriented curriculum. This framework not only supports students in pursuing research and higher education but also caters to their varied learning trajectories and professional aspirations.

2) Equity and Inclusion

Special Education Zones: In order to mitigate regional discrepancies in academic achievement, the policy suggests the establishment of Special Education Zones in regions characterised by low levels of literacy and insufficient educational facilities. Funding and support will be allocated to these specific zones with the aim of enhancing educational infrastructure, providing teacher training, and executing programmes that are customised to address the unique requirements of the local populace. By concentrating resources on these marginalised areas, the policy seeks to ensure that all students have access to equitable educational opportunities.

Scholarships and Financial Support: It is imperative to augment the provision of financial aid, fee exemptions, and scholarships in order to guarantee access to higher education for students hailing from economically disadvantaged backgrounds. In addition to recommending the introduction of new scholarship programmes to cover tuition, living expenses, and additional educational costs, the policy suggests expansion of existing ones. This financial assistance will promote higher education completion and assist in reducing student attrition.

Digital Infrastructure: In rural and remote regions, it is particularly critical to bridge the educational divide through the improvement of digital infrastructure. The policy promotes the establishment of resilient digital networks as well as the provision of cost-effective internet connectivity in order to enable every learner to engage in integrated and online learning. This includes the establishment of digital classrooms, the provision of electronic devices towards students, and the development of digital resource repositories.

3) Quality Academic Research and Teaching

National Research Foundation (NRF): In order to cultivate an environment that encourages research and innovation, the NEP suggests the creation of National Research Foundation (NRF). The NRF intends to furnish financial support for research of exceptional quality in diverse fields, thereby encouraging interdisciplinary endeavours and partnerships. Additionally, it will facilitate capacity development in academic establishments, contributing to the formation of a dynamic research ecosystem that tackles both domestic and international issues.

Faculty Development Programs: Faculty must engage in ongoing professional development in order to advance the calibre of their instruction and investigations. The policy underscores the importance of implementing routine training programmes that ensure educators are well-informed about the most recent developments in research, technological tools, and pedagogical approaches. Faculty will be able to improve their teaching abilities, effectively engage students, and contribute to the cutting-edge research through the use of these programmes.

Autonomy to HEIs: Increasing higher education institutions' (HEIs) academic, administrative, as well as financial autonomy is crucial in promoting innovation and adaptability to evolving educational demands. Without excessive bureaucratic restrictions, autonomous institutions are able to develop their own educational programmes, implement novel teaching techniques, and collaborate with international and industry partners. The provision of autonomy will empower academic institutions to customise their curricula in accordance with the demands of their students as well as the labour market, thereby augmenting the standard of education as a whole.

4) Regulatory Reforms

Higher Education Commission of India (HECI): The NEP 2020 suggests that in order to consolidate the governing of higher education, the "Higher Education Commission of India" should be established as the overarching regulatory body. The HECI is anticipated to consist of four distinct verticals: standard-setting, the National Education Grants Council (HEGC), the National Accreditation Council (NAC), and the "National Higher Education Regulatory Council" for regulation and accreditation, respectively. The purpose of this framework is to establish a more unified and synchronised strategy for overseeing higher education.

Simplified Regulatory Framework: It is essential to establish an effective and transparent regulatory framework in order to eliminate bureaucratic obstacles and guarantee quality. The policy promotes the adoption of a streamlined system that eliminates superfluous procedures and places emphasis on results as opposed to inputs. The implementation of a streamlined regulatory framework for accreditation, sanction, and funding will empower institutions to enhance operational efficiency and foster innovation in their educational programmes.

5) Digital and Online Education

National Educational Technology Forum (NETF): The purpose of establishing the "National Educational Technology Forum" (NETF) is to foster the interchange of thoughts regarding the implementation of technology in an effort to improve administrative, learning, and assessment procedures. NETF will facilitate collaboration among policymakers, technologists, and educators with the aim of integrating technology into the field of education, establishing optimal methodologies, and guaranteeing fair and equal availability of digital resources.

Blended Learning Models: The implementation of hybrid learning models, which integrate both online and offline approaches, is promoted by the policy. This methodology affords adaptability and inclusivity,

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enabling learners to progress at their individual speed and convenience. To promote blended learning environments, institutions will need to create hybrid curricula, train faculty within digital teaching techniques, as well as invest in technology infrastructure.

Virtual Labs and E-Resources: It is critical to establish virtual laboratories and diverse electronic resources in order to facilitate both hands-on and theoretical learning. By providing students with practical experience within a simulated environment, virtual laboratories can increase the accessibility of science and engineering education. Moreover, the establishment of digital repositories housing textbooks, research papers, as well as multimedia resources will guarantee that students, irrespective of their geographical location, will have unrestricted access to superior educational materials.

6) Vocational Education and Training

Integration with Mainstream Education: The incorporation of vocational education into the broader curriculum will guarantee that students gain not only academic knowledge but also practical skills. The policy suggests that vocational courses be integrated into the regular curriculum so that students can acquire skills applicable to the workplace without being required to make a decision between academic as well as vocational trajectories. This integration will prepare students for a variety of career paths and increase their employability.

Industry Collaboration: It is essential for HEIs and industry to cultivate partnerships in order to align vocational programmes with market demands. Through the establishment of partnerships with companies and trade associations, academic institutions can formulate curricula that accurately mirror contemporary trends and demands, furnish students with practical experience, and offer practical training. Furthermore, these collaborations will foster job placements, internships, and apprenticeships, thereby bridging the divide between education and the workforce.

Internships and Apprenticeships: Promoting compulsory internships and apprenticeships would afford students valuable practical experience and exposure to the industry. As an integral component of their degree requirements, the policy proposes that each student fulfil a specific quantity of hours through internships or apprenticeships. By participating in this hands-on programme, pupils will have the opportunity to implement theoretical concepts in practical contexts, cultivate professionalism, and establish connections within the industry.

7) Internationalization of Education

Attracting International Students: Indian higher education institutions must develop policies that draw international faculty and students in order to increase their cultural diversity as well as global perspectives. The policy proposes streamlining visa and admittance procedures, establishing offices for international students, and providing scholarships as means to entice talent from around globe. Indian educational establishments will be able to compete more effectively internationally, and the learning environment will be enriched by the inclusion of diverse perspectives.

Twinning Programs and Collaborations: By advocating for twinning programmes, joint degrees, as well as collaborations with foreign universities, academic institutions can offer students valuable opportunities for global learning. By developing partnerships, academic institutions can facilitate opportunities for students to pursue joint research initiatives, participate in exchange programmes, and complete portions of their degrees abroad. These collaborative efforts will promote cross-cultural understanding, expose students to the international standards, and enhance the quality of education.

Facilitating International Research: Fostering partnerships with international institutions in research is essential for advancing the exchange of knowledge and fostering innovation. The policy promotes the establishment of international research centres, the funding and support of collaborative research initiatives, and participation in "global research networks". These initiatives will facilitate the participation of Indian researchers in worldwide scientific progress and attract international knowledge to the nation.

8) Governance and Leadership

Leadership Training: It is essential to implement leadership development programmes for university administrators in order to promote efficient management and governance practices. The policy advises that institutional leaders engage in consistent professional growth and training in order to furnish them with the necessary competencies to navigate the intricacies of contemporary higher education. Reinforced leadership is essential for fostering institutional expansion, promoting innovation, and upholding quality benchmarks.

Institutional Development Plans (IDPs): "Institutional Development Plans" (IDPs) will guarantee that every HEI has a distinct strategic vision and set of objectives. The agenda for these plans ought to comprise the establishment's key objectives, approaches to growth, and evaluation criteria. Consistent evaluations and revisions of internally displaced persons (IDPs) will assist organisations in maintaining their focus on goals, adjusting to evolving requirements, and upholding responsibility.

Transparent Admission and Recruitment: For the maintenance of quality and equity, it is critical to guarantee transparency throughout the faculty recruitment and admissions processes. The policy proposes the adoption of standardised admission procedures, the establishment of merit-based recruitment, and the utilisation of technology to optimise these procedures. Higher education institutions can enhance their reputation, attract exceptional students and faculty, and maintain their integrity by implementing transparent systems.

9) Lifelong Learning and Professional Education

Continuing Education Programs: In order to facilitate learning throughout life and skill improvement, it is essential to establish programmes for continuous education and professional development. Adult learners and working professionals are encouraged to enrol in short-term courses, online modules, as well as certification programmes offered by HEIs in accordance with the policy. These programmes will

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facilitate career progression and assist individuals in remaining pertinent in a labour market that is constantly evolving.

Recognition of Prior Learning (RPL): By incorporating Recognition of Prior Learning frameworks, competencies and information obtained beyond the confines of formal education systems will be recognised and certified. The policy supports the implementation of certification procedures and standardised assessment instruments to authenticate vocational training, work experience, and informal education. RPL will furnish students with adaptable trajectories to advance their education and secure employment prospects.

10) Assessment Reforms

Holistic Assessments: The analytical, critical, as well as creative thinking abilities of students will be assessed through the adoption of continuous as well as comprehensive evaluation methods. The policy suggests substituting an array of assessment methods, including group work, presentations, and projects, for high-stakes examinations. This methodology will yield a more precise and comprehensive assessment of an individual's capabilities and advancement.

Technology-Enabled Assessments: By integrating technology into assessment procedures, immediate feedback can be obtained, thereby promoting equitable and streamlined evaluation processes. The policy recommends utilising digital tools to monitor student performance, including online examinations, automated assessment, and data analytics. The implementation of technology-enabled assessments will result in increased transparency, decreased administrative workloads, and knowledge of learning outcomes.

Outcome-Based Education (OBE): By integrating Outcome-Based Education frameworks into educational systems, it is possible to guarantee that syllabi and academic achievements correspond with the demands of the labour market. The policy promotes the establishment of unambiguous learning outcomes for every programme, as well as the development of curricula and evaluations that effectively attain these objectives. OBE will assist institutions in preparing graduates for the real-world challenges and concentrating on student competencies.

1.3 Potential Challenges

The subsequent items comprise a list of anticipated or observed potential obstacles, blockages, and unanticipated repercussions that may arise from the application of NEP 2020 in the realm of higher education:

Infrastructure and Resources: The implementation of the proposed changes outlined in NEP 2020 would necessitate substantial infrastructure and resource investments. Financing the provision of digital resources, upgrading facilities, and outfitting classrooms with technology may present financial obstacles, especially for institutions which are already contending with constrained financial resources.

Faculty Development: The importance of faculty development in accordance with emerging teaching

methodologies as well as interdisciplinary approaches was underscored by NEP 2020. Despite this, it may be difficult to ensure that faculty members receive adequate training and remain current with evolving educational practices due to a lack of readily available training opportunities, limited time, and some educators' resistance to change.

Regional Disparities: Preexisting regional disparities in educational infrastructure, assets, and access to high-quality education posed a potential obstacle to the effective execution of NEP 2020, despite its overarching objective of fostering equitable access to education. Across these openings may lie a formidable obstacle?

Assessment and Evaluation: The policy advocated for changes in the methods of assessment and evaluation, discouraging the use of memorization-based learning and rigorous examinations. Nevertheless, the process of devising and executing alternative evaluation techniques that effectively gauge practical skills, critical thinking, and innovation can be intricate and laborious.

Multilingual Education: As the primary language of instruction, NEP 2020 emphasised the significance of the maternal dialect or local language. Although the potential benefits of this extend to cognitive development, its implementation in higher education may present difficulties, particularly in specialised subjects where access to materials in local languages may be scarce.

Autonomy and Regulation: The objective of the NEP was to grant greater autonomy to institutions of higher education; however, striking a balance among autonomy and efficient regulation to uphold educational standards may prove difficult. An excess of autonomy could result in disparities in quality among different institutions.

Credit Transfer and Curriculum Flexibility: Standardization, compatibility, and cross-institutional credit recognition are potential challenges with the planned transdisciplinary curriculum and credit transfer system. A well-coordinated effort may be necessary to guarantee that students have a seamless transition between programmes and institutions.

2 Literature Review

(Satish Dhokare et al., 2012) The "National Education Policy" (NEP) 2020 has introduced a significant transformation in the way higher education is approached, representing a landmark reform within India's education sector. This research paper explores the diverse and extensive effects of NEP 2020 on students, higher education institutions, and educational ecosystem at large. By utilising a combination of both quantitative and qualitative information, this research investigates the execution of the policy and evaluates its ramifications on multiple levels.

(Aithal & Aithal, 2020) A nation must have a well-defined and forward-thinking education policy at the secondary and tertiary levels, as education is the engine of economic and social development. Under the guidance of its present prime minister and an expert team comprising individuals from diverse origins, India has formulated and intended to execute the Indian National Education Policy, a novel educational strategy for the forthcoming decade of the twenty-first century. The intention, objectives, and specifics

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are widely recognised by both professionals and the general public. NEP-2020 is a forward-thinking and progressive proposal that possesses both favourable and unfavourable characteristics. Its overarching goal is to ensure that all individuals have access to high-quality secondary and tertiary education, with an emphasis on comprehensive and research-driven advancements.

(Sinha & Shekhawat, 2020) The announcement of New Education Policy (NEP) by the Government of India in the year 2020 was met with widespread approval from nearly all segments of society. After 1986, there was a significant shift in the education policy. As a consequence, this governmental decision was universally regarded as an optimistic and constructive stride, signifying not only a significant shift in the realm of education but also a fitting response to the challenges posed by the current global education system. The evolution of this educational system was not an abrupt development; rather, it had been planned for quite some time. Many, however, did not anticipate that this transformation would occur with such swiftness and velocity.

(S & Praseeda, 2020) This paper undertakes an examination of Indian National Education Policy 2022 (NEP) within Higher Education in relation to its international standing, drawing inspiration from the educational policies implemented in countries such as Australia, China, Germany, and Singapore. NEP 2020 supports comprehensive development by employing a multidisciplinary approach that incorporates digital learning, curriculum and course autonomy, advanced technology, business acumen, and global education.

(Yadav, 2021) The New Education Policy declared by the Indian government NEP 2020 represented a welcome change and fresh perspective in the wake of the global downturn brought about by the Covid-19 pandemic's difficulties. The NEP 2020 announcement came as an absolute surprise to many. Numerous educationists did not anticipate the modifications which NEP 2020 has proposed. Though both K-12 and higher education have been affected by the policy, NEP-2020 is the primary subject of this article because to its effects on the former. In addition, this article examines the impact of NEP's prominent characteristics on the current educational system.

(M Shasidharan, 2021) An genuine effort was made in this study, entitled "A Review of National Education Policy 2020," to examine the extant literature concerning the NEP 2020 and identify any deficiencies that may hinder future research in this area. To accomplish its aims, the study employed qualitative research methods, and an examination of 18 research papers was conducted to extract valuable insights pertaining to the study's subject matter. This study functions as an informational resource for the NEP 2020 researchers and stakeholders. This study aims to provide researchers with insights into the opportunities and challenges that have arisen since the implementation of the New Education Policy 2020.

(Saxena, 2021) A nation must have a well-defined and forward-thinking education policy at the secondary and tertiary levels, as education is the engine of economic and social development. In order to optimise effectiveness, various nations implement distinct education systems that take into account their respective cultures and traditions, as well as distinct phases of development at the secondary and

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tertiary levels. The 29 July 2020 approval of National Education Policy 2020 by the Union Cabinet of India delineates the overarching vision for the forthcoming education system in India.

(Chutia et al., 2022) Education is regarded as a fundamental component of human existence, as it influences the growth, development, and well-being of individuals. It is the foundation of existence from which society's members acquire knowledge, awareness, occupational competencies, and cultural customs. Education, spanning from the elementary level to the tertiary level, assumes greater significance and relevance in an organised society where each member strives for personal growth and a high standard of living. Education is a fundamental privilege bestowed upon all citizens of India by Constitution of India, 1950. The provisions pertaining to children's education are outlined in the fundamental duties and directive principle of state policy of the Indian constitution. The 2020 education policy seeks to ensure accessible and fair education for all, spanning from elementary school to higher education.

(Indhu, 2022) The objective of the NEP is to establish an educational system that actively supports the nation's progress by providing equitable and superior education to all citizens and transforming India into a global epicentre of knowledge. The 10+2 system has been eradicated entirely in accordance with the new educational policy. Previously supported by 10 + 2, the nation's educational curriculum will shortly be supported by 5 + 3 + 3 + 4. This indicates that fifty percent of the time is devoted to grades one through two, the other fifty percent to grades three through five, the remaining fifty percent to grades six through eight, and finally, grades nine through twelve.

(Bhandwalkar, 2023) The "National Education Policy" (NEP) 2020 implemented a paradigm shift in the Indian educational system. In the context of India, this article offers an exhaustive analysis of implementation of NEP in higher education institutions (HEIs). An all-encompassing, multidisciplinary, and student-centric approach to education is emphasised in the NEP. This research paper investigates the significance, advancements, obstacles, and potential consequences of NEP at HEIs. The National Education Policy 2020 signifies a significant paradigm shift within the educational framework of India. It comprises an extensive array of initiatives and modifications with the objective of revolutionising the field of education.

(Dash, 2024) In the midst of the global downturn brought about by the Covid-19 pandemic, the Government of India's New Education Policy (NEP 2020) was an invigorating alteration and welcome development. The NEP 2020 announcement came as an absolute surprise to many. Numerous educationists did not anticipate the modifications that NEP 2020 has proposed. While education policy has had an equal impact on both secondary and tertiary education, this article is predominately concerned with NEP 2020 and its implications for higher education. In addition, this article examines the impact of NEP's prominent characteristics on the current educational system.

(B & N, 2024) The "Indian education system" is a composite of modernization and tradition, contending with obstacles while adapting to the requirements of an ever more dynamic global landscape. Furthermore, it embodies a variety of pedagogical approaches that reflect the nation's abundant cultural legacy. The encouragement of academic rigour through the prevalence of competitive environment is

one of its pillars. Nonetheless, this frequently places students under tremendous stress, which negatively impacts their mental health. There are times when the prioritisation of academic performance diminishes the significance of practical abilities and comprehensive growth.

3 Conclusion

As stated at the beginning, the challenges and possibilities presented by the National Education Policy (NEP) 2020's implementation in higher education in India are equivalent to the country's educational paradigm shift. The paper has presented a concise synopsis of the policy's effects and approaches on higher education, as well as the challenges that require further investigation.

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Artificial Intelligence in Education: Opportunities and Ethical Considerations

Dr. Bhawana Sangeet^{1*}

¹*Assistant Professor in Rao Ranjeet Singh College of Education.*

Abstract

The implementation and progression of Artificial Intelligence (AI) technologies within the realm of education have generated substantial discourse and prompted ethical deliberations. Although there is considerable discourse surrounding the potential benefits of AI in education, the ethical ramifications that stem from its conception and advancement have received comparatively less attention. The principle purpose of this paper is to investigate AI in field of education in order to identify its various opportunities/benefits and ethical implications. Additionally, an effort has been made to examine AI through the lens of NEP 2020.

Keywords: AI, Education, NEP 2020, Ethics, Opportunities, Higher Education.

1 Introduction

NEP-2020's critical analysis suggests that the trajectory of the Indian educational system towards the future is generational. In light of the critical factors influencing the success of education systems in developed nations, policymakers are compelled to reconfigure educational systems in order to prepare individuals to adopt artificial intelligence (AI). This pressure ultimately leads to a restructuring of the education system. When required, the entire instructional mechanism can be incentivized and serve as a guide for progress. Recognising this fact, AI has been accorded greater weight than the conventional methods of the past that were employed in education. Furthermore, NEP-2020 incorporates code

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languages, three-dimensional imagery, and artificial intelligence (AI) to ensure that the fundamentals of education are perceived as forward-thinking in the future.

It is widely acknowledged that education enabled by the current generation has the potential to revolutionise the entire educational system in accordance with the demand for hours. Online recorded academic applications, similar to Massive Open Online Courses (MOOCs), have become progressively more challenging for the education system in recent years, particularly during the COVID-19 pandemic when instructors and students are prohibited from attending offline instructional programmes. Completing the wants of hundreds of thousands of pupils is another area in which AI may be quite helpful. While educational infrastructures are equipped to integrate or utilise AI for instructional purposes, including the processes of teaching and learning. Globally, AI is regarded as a highly prospective and undeniably potent educational tool that has the potential to be applied to a wide range of educational purposes.(Jadhav, 2023)

1.1 State of AI in higher education

The prospective impact of artificial intelligence (AI) on educational activities is substantially substantial. Very rapidly, the implementation of AI technologies is emerging as a feasible strategy for organisations to optimise operations, reduce costs, and accelerate workflows. The capacity of artificial intelligence to handle increasingly complex and significant tasks is growing. The use of AI has the potential to greatly facilitate the process of curriculum building by producing a wide range of resources, including but not limited to study materials, instances, lesson plans, assignments, presentations, assessment rubrics, and more. In response to the advent of artificial intelligence, academic establishments have begun to shift away from traditional assessment methods and adopt comprehensive evaluation strategies that promote genuineness and continuous education. While this transition undeniably improves assessment quality, it also places an additional burden on faculty within terms of coordinating with students and staff, implementing a variety of assessment techniques, and maintaining records of assessment outcomes, among other associated obligations. The capacity of AI-enabled applications to enable a transition from a standardised technological approach to the scalable deployment of customised and adaptable learning experiences represents their true potential.

Diverse educational institutions have recognised inclusion, equity, and diversity as critical goals in their quest to provide high-quality instruction. Therefore, it is the responsibility of educators to guarantee that pupils who possess varied educational backgrounds, needs, and preferences are provided with equitable and substantive learning opportunities, in addition to prompt support and assistance. Nevertheless, the implementation of artificial intelligence (AI) could potentially surmount economic and geographical obstacles, thereby providing underprivileged or remote students with the same extraordinary educational opportunities as their wealthier counterparts. When instructors are confronted with a significant number of students from diverse geographic locations and a substantial student body, they are entrusted with a time-consuming workload that includes grading assignments, providing feedback, and coordinating collaborative project groups. As a result, instructors have little opportunity to individualise the learning experiences of their pupils. Artificial intelligence (AI) technology has the capacity to compile and

examine vast quantities of institutional data, producing comprehensive conclusions from these diverse data points.

Consistent with the discourse, the advent of artificial intelligence in academic environments presents unparalleled prospects for enhancing efficiency, optimising processes, and cultivating individualised learning encounters. Although the potential of AI to transform assessment methods is encouraging in terms of fostering authenticity and inclusiveness, it also imposes increased responsibilities on academic institutions. Furthermore, the significance of inclusion, equity, and diversity (DEI) is emphasised in relation to the necessity for fair and equal access to educational opportunities propelled by AI, specifically in geographically isolated or underserved regions. Notwithstanding the obstacles pertaining to burden and personalisation, the capacity of AI to analyse substantial volumes of data presents prospects for enhancing pedagogical approaches and bolstering student achievements. Hence, it is imperative to incorporate AI in education in a responsible manner, which necessitates meticulous preparation and execution to guarantee ethical implications and fair availability of educational opportunities. Through judicious and inclusive utilisation of AI's capabilities, educators have the capacity to foster vibrant learning environments that accommodate the varied requirements of each student, thus propelling the standards and availability of education forward.

1.2 Ways AI is Transforming Education in India

1. Personalised learning

By means of personalised learning, pupils have the opportunity to not only gain in-depth knowledge of their areas of weakness but also to receive specialised assistance in those areas. We can instill in students a passion for lifelong learning and enable them to assume responsibility for their education by creating an atmosphere that allows for self-paced learning. In addition, the implementation of AI in classrooms fosters the development of critical thinking and creativity through the promotion of diverse viewpoints and the identification of original problem-solving approaches. These are skills that are particularly crucial in the context of our contemporary, ever-changing society. Personalised learning transforms educators into facilitators who assist each student in reaching their utmost capabilities.

2. Intelligent Tutoring Systems

Intelligent tutoring systems possess the capability to discern areas of deficiency, deliver focused feedback, and furnish individualised suggestions for enhancement through the analysis of student data. These systems maintain an ongoing assessment of the learner's progress and make necessary modifications to the instructional approaches and level of difficulty of the material. Moreover, it has been demonstrated that intelligent tutoring systems significantly improve student outcomes. Through the provision of personalised instruction and prompt evaluation, these systems enable students to assume responsibility for their own education, thereby enhancing their self-assurance and fostering a feeling of achievement.

3. Adaptive Assessments

Through the implementation of algorithms, adaptive assessments optimise the learning experience for every individual student. Consider a situation in which a pupil is participating in a mathematics evaluation. The system promptly assesses the responses, determines levels of expertise, and identifies specific domains that require enhancement. Adaptive assessments serve to empower students and enable educators to collect accurate data regarding their comprehension. Additionally, they empower learners to effectively monitor their own progress. The integration of artificial intelligence (AI) into the educational system in India presents a prospective scenario in which each student can achieve personal growth and fulfilment while progressing at an individualised rate.

4. Virtual Classrooms

Virtual classrooms, furnished with sophisticated interactive functionalities, facilitate instantaneous video conferencing, messaging capabilities, file-sharing capabilities, as well as interactive whiteboards. Furthermore, the implementation of AI in the education sector enables the smooth incorporation of multimedia materials, online evaluations, and immediate feedback systems. Students are afforded the opportunity to investigate historical sites or venture into depths of outer space via visually captivating simulations. Students can also establish connections with instructors and educators from around the globe. This approach affords pupils distinct viewpoints and an expanded comprehension of the topic at hand.

5. AI-powered Content Creation

This novel methodology employs sophisticated algorithms as well as machine learning strategies to produce educational materials of exceptional quality, encompassing interactive multimedia resources and textbooks. Through the automation of content creation, artificial intelligence (AI) in the education sector grants educators access to a vast collection of current and customised resources for their students/learners. A notable characteristic of content generation propelled by AI is its capacity to modify content in accordance with the unique requirements and learning preferences of each student. AI in the education sector has the capability to identify knowledge deficits and tailor educational materials to address them through data analysis. This ensures that students are provided with specific information that is tailored to their individual needs.

6. Predictive Analytics for Student Success

By analysing enormous quantities of data, this technology is capable of forecasting the future performance of students and customising interventions to maximise their success. Predictive analytics enables educators to acquire significant insights into the learning patterns of students, facilitating the identification of trends and determinants that influence academic achievement. Furthermore, predictive analytics provides individualised suggestions to support the educational progress of every student. Educators are able to accommodate the unique requirements of each student by comprehending their areas of proficiency and areas for development. By adjusting instructional approaches, one can guarantee that every student obtains the necessary assistance to achieve success.

1.3 The benefits and opportunities offered by AI

There are numerous opportunities and benefits associated with the incorporation of Artificial Intelligence (AI) into education, including the potential to increase student engagement, teaching and learning practices, and administrative efficiency. Here are several significant advantages and prospects:

Personalized Learning: Personalised learning experiences are made possible by AI, which adapts instruction to the specific requirements of each student. With the assistance of intelligent tutoring systems propelled by AI, customised content, adaptive feedback, and individualised learning trajectories can be generated, resulting in enhanced student achievements.

Enhanced Student Engagement: By providing immersive and interactive learning environments, AI-powered educational tools have the potential to inspire greater student participation. Augmented reality (AR) and virtual reality (VR) offer learners immersive and experiential learning environments that encourage inquisitiveness, innovation, and active engagement.

Adaptive Content Delivery: Student data can be analysed by AI algorithms in order to provide individualised content. Adaptive learning systems possess the capability to modify the tempo, level of difficulty, and order of learning materials. This guarantees that students are provided with material that corresponds to their individual learning preferences and level of proficiency.

Data-Driven Decision Making: Using predictive modelling and AI analytics, one can gain insight into student performance, learning patterns, as well as intervention requirements. These data-driven insights can be utilised by educators to optimise instructional strategies, implement targeted interventions, and make informed decisions.

Administrative Efficiency: Administrative duties are streamlined by AI, conserving both time and resources. AI systems can effectively oversee automated procedures including student registration, grading, and scheduling. This enables educators to allocate their time and attention to instructional activities and student support.

Personalized Support for Teachers: Instruments enabled by AI can offer instructors individualised assistance and resources. By reducing their burden and increasing their efficacy, Natural Language Processing (NLP) chatbots as well as virtual assistants can aid educators in lesson planning, resource curation, and responding to frequent student inquiries.

1.4 Ethical Consideration

1. Data Management And Biases

To commence, akin to general artificial intelligence, apprehensions exist concerning the enormous quantities of data collected to support AIED. The collection of data is benevolently undertaken to enable student learning. An instance of this can be observed in a Chinese educational institution where facial recognition technology has been integrated to monitor students' levels of attentiveness in the classroom. In the event that the system detects a student preoccupied with extraneous thoughts, the instructor will

be duly informed so that appropriate intervention can be implemented. Significant questions remain, however, regarding ownership and accessibility of this information, its privacy concerns, appropriate methods of data interpretation, sharing, and analysis, and the allocation of liability in the event of an error. Intelligent analytics empowers educators and material providers to obtain crucial insights regarding the progress of learners, thereby facilitating the enhancement of the provided content. The ethical dilemma that arises is thus linked to the management of student information (1). Undoubtedly, in light of the vulnerability of AI algorithms to infiltration and manipulation, it is imperative to develop strategies that effectively mitigate these risks. Furthermore, in cases where the objective of AIED interventions is to promote alterations in behaviour, the entire AIED-enhanced pedagogical process must be morally sound.

2. Explainability And Transparency

Specific elements concerning the ethical assessment of AI within education. Clarity and openness regarding the process by which AI-powered tools make decisions and the underlying reasoning for those decisions constitute explainability and transparency. The considerable expansion of explainable AI in recent years has been substantiated by a prior study. The increased recognition as well as prominence of Explainable AI may be ascribed to its depiction as a prospective solution to the difficulties that emerge from the swift advancement of AI technology. In recent times, ensemble techniques and deep neural networks have become synonymous with opaque models, which are distinguished by their multitude of layers and millions of parameters. In light of the growing prevalence of such models in crucial industries like medicine and law, it is crucial to comprehend the rationale behind AI-powered decisions before putting them into practice. Further research has been initiated to examine the discrepancies in performance between trained AI models and diverse subjects. This investigation has brought attention to the significance of model fact sheets, which are alternatively referred to as model cards and contain extensive information regarding the models. By consulting these fact documents, professionals are able to evaluate models not solely on the basis of performance metrics and analyses, but also with regard to ethical considerations, guidance, and limitations.

3. Accountability

An additional element to consider is accountability, which pertains to the duty-behavior of AI developers as well as software architects concerning their AI initiatives. Put simply, it is the duty of corporations and their programmers to proactively promote the ethical advancement and implementation of artificial intelligence (AI), in accordance with universally acknowledged human rights principles that impact all fields of study, including education. The developer of AI model is presently obligated to adhere to the ethical code that regulates AI in education. Additionally, technological determinism emphasises the responsibility of developers for their works. Over the course of the last 150 years, two predominant approaches have emerged and vied for prominence in the field of philosophy of technology: technological instrumentalism and technological determinism.

Technological instrumentalism posits that technologies are inherently neutral and function merely as

instruments, subject to human control and influence, regardless of the technology's design. It primarily centres on the behaviours and circumstances of individuals. In contrast, technological determinism posits that unanticipated ways in which technological device components can influence human behaviour are possible. In recent times, scholars have begun to scrutinise the sufficiency of the conventional instrumentalist philosophy, contending that it neglects to confront the intricate complexities that emerge from rapid technological progress. Nonetheless, the implementation of ethical directives presents difficulties for developers on account of their conceptual nature. The necessity consequently arises to shift from merely delineating ethical principles to actively implementing them. This requires a transition in emphasis from code to individuals, who will ultimately be held accountable for AI ethics. Through this process, ethics are transformed from abstract concepts to concrete realities.

4. Authorship

ChatGPT is an AI model that generates language that resembles that of humans. A substantial volume of textual data was utilised to train the model utilising machine learning algorithms. However, in the process of obtaining responses, especially when knowledge is being sought, the sources from which the response was derived are not cited. By neglecting to attribute the authorship of the conversation output, which we assume to be accurate and pertinent, we are in violation of copyright. Those who rely on obtained responses are also subjected to substantial deficiencies in their educational experience. Digital curricula employing a variety of mediums, personalised learning interfaces, and digitised manuals are all capable of generating intelligent content. Concerns of a legal and ethical nature arise in relation to intellectual property rights. ChatGPT demonstrates several notable intrinsic deficiencies, such as the production of erroneous responses and the creation of articles that do not exist. As an illustration, when ChatGPT was tasked by an author to produce scholastic content for their research paper, it generated a non-existent fictional article. Furthermore, it furnished exhaustive bibliographic information, including URL that fails to redirect to any operational material.

2 Literature Review

(Reiss, 2021) Diverse perspectives exist regarding the potential of artificial intelligence (AI), spanning from exaggerated assertions of its imminent life-altering nature to dire prognostications of its capacity to bring about the apocalypse and widespread unemployment to the extinction of life as we know it. I examine the practical applications of AI in education as well as the ethical concerns it engenders in this article. In the near to medium term, AI has potential to augment student learning and supplement the efforts of (human) educators without replacing them. This is my primary conclusion. Furthermore, AI should facilitate the crossing of traditional learning divides such as "school versus home" to a greater extent. While AI presents the potential for enhanced personalisation in education, it also carries the danger of learning devoid of social interaction.

(Krstić et al., 2022) Presently, virtually every endeavour is intertwined with the application of computer technology. In the realm of education, the implementation of cutting-edge technologies like artificial intelligence (AI) introduces novel prospects, challenges, and opportunities. Artificial intelligence (AI),

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which emulates human intellect in its ability to draw conclusions or make predictions, enables computer systems to furnish students and instructors with individualised guidance, assistance, or feedback throughout the educational process. This paper's goals are to (1) determine how AI has altered the educational landscape, (2) describe many AI-based educational applications, and (3) emphasise the advantages that these applications are thought to provide.

(Venkat Iyer Associate Professor & Kalyandurgmath, 2022) Education is fundamental to achieving one's utmost capabilities, fostering an equitable and just society, and propelling the advancement of the nation. Every nation must have a clearly defined, forward-thinking, and futuristic education policy, given that education is the primary catalyst for both economic and social development. Education policies vary across countries in accordance with their respective traditions and cultures. The most effective way to develop and utilise a nation's enormous resources and capabilities for benefit of individuals, society, the nation, and the world is to provide universal, high-quality education. The Union Cabinet of India granted approval to National Education Policy 2020 (NEP 2020), which establishes the objectives for India's forthcoming education system, on July 29, 2020. By substituting the National Policy upon Education from 1986. NEP 2020 aims to establish an all-encompassing structure encompassing primary education, higher education, vocational training, and more.

(Jadhav, 2023) Consistent with multiple international assessments, artificial intelligence in education (AIED) is a burgeoning academic discipline at Gift. Despite its thirty-year existence, educators remain uncertain about its pedagogical implications, how it can influence significant teaching and learning, and its potential impact on learning in higher education. The objective of this paper is to delineate research on AI products in higher education by conducting a scientific evaluation of NEP-2020.

(Bahadur & Karki, 2023) The global adoption of artificial intelligence (AI) in higher education is expanding at a rapid rate. In light of the growing importance of AIHed and the lack of a thorough evaluation of the topic, this study explores the current state of AIHed, its impact on academic honesty, and the ethical considerations surrounding it. In order to accomplish the purpose of the research, a literature review was utilised as both the research design and methodology for this qualitative study. AI has the potential to significantly contribute to nurturing inclusivity and accessibility, enhancing educational and educational experiences, and increasing productivity and efficiency, according to the analysis of the paper.

(Abdulmunem, 2023) Artificial Intelligence (AI) pertains to the capacity of computer systems and technology as a whole to emulate the processes of human intelligence. AI is an area of technology that is undergoing accelerated development and has the capacity to profoundly alter all social interactions. In numerous educational settings, artificial intelligence is presently being utilised to facilitate the development of novel instruction and learning strategies. In order to help shape future educational policies and programmes, AI is sifting through massive amounts of data in search of patterns and insights. The primary objective of this paper is to investigate the necessity of AI in the education sector and identify the various obstacles that lie within. Additionally, an effort has been made to examine AI through

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the lens of NEP 2020. By examining numerous articles on artificial intelligence, the research is conducted qualitatively.

(Karagkouni & Sotiropoulou, 2023) The implementation and progression of Artificial Intelligence technologies within the realm of education have generated substantial discourse and prompted ethical deliberations. Although there is extensive discourse surrounding the potential advantages of AI in education, the ethical ramifications linked to its conception and advancement have received comparatively less attention. The objective of this study is to fill this void through an exhaustive examination of the current body of literature concerning the ethical implications of Artificial Intelligence within Education. By capitalising on prior investigations, this research endeavours to examine fundamental ethical considerations such as data management, authorship, biases, transparency, and inclusivity.

(Imam Karya Bakti et al., 2023) Using the PRISMA framework and a systematic literature review, this study examines the impact of artificial intelligence (AI) on the education sector in India. The study presents its findings in three clusters: the evolution and definitions of artificial intelligence, technological advances in AI, and the function of AI in Indian education, based on an analysis of 111 publications. The results indicate that the utilisation of AI tools improves the efficacy of assessment and cultivates students' critical thinking as well as analytical abilities.

(Pirrès et al., 2023) Numerous literature reviews pertaining to artificial intelligence (AI) within higher education or education at large have examined the various AI applications, techniques, and benefits/risks associated with AI implementation in this domain. Providing timely feedback and tailoring higher education to meet the specific requirements of each pupil is one of the vastest applications of AI. If the requirements of students with disabilities are taken into account during the advancement of novel AI educational technologies (Edtech), this could yield substantial advantages. Nevertheless, existing evaluations neglect to consider the viewpoints of students who have disabilities. This viewpoint is crucial due to the fact that AI will almost certainly raise a number of ethical concerns for individuals with disabilities. AI may, for instance, discriminate against individuals with disabilities on the basis of the data treating them as outliers.

(Lim et al., 2023) Artificial intelligence in education refers to the application of technological advancements that enable digital systems to execute tasks typically associated with intelligent entities, with the intention of creating an educational environment where machines mimic human-like consciousness and behaviour. Assessment is a significant constituent among the three fundamental pillars of education, which also include curriculum and pedagogy. In their comprehensive examination of the AIED domain, Chaudhry as well as Kazim (2022) identified assessment as one of four critical sub-domains, joining intelligent learning environments, learning personalisation, and automated learning systems.

(Chima Abimbola Eden et al., 2024) The incorporation of Artificial Intelligence (AI) into the field of education is a highly auspicious area that offers innumerable prospects; however, it also introduces

substantial obstacles and requires ethical deliberation. This review examines the complex terrain of artificial intelligence (AI) incorporation in the field of education, emphasising its capacity to transform conventional pedagogical methods, customise learning experiences, and optimise administrative duties. Nevertheless, it also confronts the obstacles associated with execution, such as concerns regarding accessibility, confidentiality of data, and the disparity in access to digital resources. The educational possibilities presented by AI are extensive and paradigm-shifting. With the ability to tailor instruction for different learning styles, AI-powered technologies can significantly increase student engagement as well as academic achievement. Moreover, the implementation of AI-driven tools can streamline administrative duties, enabling instructors to devote more time to substantive engagements with pupils.

(Tang & Su, 2024) The expanding implementation of artificial intelligence (AI) approaches in educational settings not only yields numerous advantages but also presents a myriad of ethical ramifications. It is now essential for the provision of effective education to comprehend the ethical ramifications associated with the implementation of AI models in the classroom, as well as the guiding principles for preventing and mitigating these ramifications. However, there is a dearth of comprehensive research on ethical ramifications associated with the implementation of AI models in educational settings. Thus, by conducting a systematic literature review, this study aims to provide a comprehensive overview of research pertaining to the ethical implications, principles, future research orientations, and practices associated with the implementation of AI models in educational settings.

3 Conclusion

In conclusion, it is critical that education stakeholders utilise the potential of AI in a responsible and ethical manner. Addressing ethical concerns such as accessibility, data privacy and security, the digital divide, as well as bias in AI algorithms necessitates a collective endeavour. Simultaneously, this endeavour should capitalise on prospects for innovation and enhancement in the realm of education.

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Education for Sustainable Development: Reviewing Curriculum Integration

Ravindra D. Hande^{1*}

¹*Assistant Professor, Geography, SNDT Arts and Commerce College for Women, Pune.*

Abstract

Education is addressed by SDG4, which is one of the seventeen sustainable development objectives list by the United Nations. SDG 4's primary objective is to guarantee inclusive, equitable, and universal education for all individuals by the year 2030. With respect to India, the SDG4 is approached with great seriousness. Examining the numerous approaches to curriculum incorporation in the education system to promote sustainable development, this paper focuses primarily on role of NEP (2020) in accomplishing the SDGs' targets.

Keywords: NEP 2020, SDGs, Education, Curriculum, Integration.

1 Introduction

Sustainable development, which entails the equitable coexistence of environmental stewardship, social progress, and economic advancement, is a cornerstone of modern foreign policy objectives. The foundation of the Sustainable Development Goals of the United Nations is a collection of seventeen interrelated objectives designed to tackle an extensive array of urgent global issues by the year 2030. One of the key objectives that significantly influences the progress of various other SDGs is SDG 4, which pertains to the universal provision of high-quality education. The United Nations has acknowledged that education is a potent catalyst for change, with the capacity to disrupt cycles of poverty, advance gender parity, stimulate economic expansion, and cultivate well-informed and involved individuals on an international scale. The 2020 National Education Policy (NEP 2020) of India is a landmark document with the capacity to reshape the educational environment of the country. NEP 2020

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is an all-encompassing framework that tackles a multitude of crucial concerns, such as the revision of curricula, advancements in pedagogy, integration of technology, and the promotion of equal educational opportunities. In addition to its capacity to influence the trajectory of India's educational system in the coming years, the policy is significant for its ability to harmonise the country's ambitions with international agendas, such as the Sustainable Development Goals (SDGs).(Tushar Dhar Shukla et al., 2023).



Figure 1 Sustainable development goals (Deepa Pillai, 2023)

1.1 Sustainable Development Goals Related To NEP 2020

India's inaugural education policy of the twenty-first century, National Education Policy (NEP), was implemented in 2020. With a vision for education that promotes sustainable development, the NEP is anticipated to put India on the path to achieving Goal 4—quality education—by providing all citizens with an inclusive and equitable education. NEP has placed particular emphasis on the necessity of restructuring the complete education system in India in order to ensure the expeditious attainment of established goals and objectives. The goal of NEP 2020 is to provide environmental education that is both thorough and integrative, including topics such sustainable living and development, waste management, biodiversity, sanitation, climate change, and environmental protection. Ensuring environmental education is a mandatory component of the curriculum, NEP has placed special emphasis on training and sensitising teacher trainers and educators regarding sustainable development. The

objective of the NEP is to deliver education in a manner that not only ensures sustainable livelihoods but also stimulates the national economy.

Prior to the NEP, efforts and emphasis were placed on advancing sustainable education via education. Priority areas in the realm of formal education and teacher training have already been identified by the "Pacific Education for Sustainable Development Framework" in order to enhance teachers' comprehension and knowledge of sustainable practices, with an especially strong emphasis on advancing quality education. Nationally and globally, "education for sustainable development" (ESD) has been a significant area of emphasis. Due to the recent introduction of NEP, the policy's comprehensive and efficient implementation still has a considerable distance to travel. Until then, the nation may continue to observe and implement effective approaches while striving to ensure that the NEP and ESD components are seamlessly integrated into curriculum methodology and are accessible and implemented across all educational institutions in India.

SDG-4: SDG-4 targets the promotion of opportunities for continuous learning and the assurance of quality education that is inclusive and equitable for all. By means of the subsequent provisions, the NEP endeavours to attain these objectives.

- “Multi-Disciplinary Approach
- Education and Skills Integration
- Making education more inclusive
- Effective Regulation
- Allowing Foreign Universities.”

Large-scale advancements have been made in India in pursuit of universal education. A fundamental right to education for all children between the ages of six and fourteen has been established through the implementation of a number of crucial programmes and policies mandated by the Constitution. The Indian education system has received a much-needed boost from initiatives like Right to Education (RTE) and Sarva Siksha Abhiyan (SSA). Although primary education enrollment rates have increased substantially across the nation, the issue of learning outcomes quality continues to require attention. SDG 4, which pertains to education, is a sustainable development achievement.

1.2 The relationship between education and sustainability

The extent and quality of education that advocates for sustainable development are critical determinants of a sustainable future, as they are intricately linked to sustainability. Through raising awareness, promoting responsible and ethical conduct, and cultivating analytical and problem-solving abilities, education is vital to the creation of a more sustainable world.

Education promotes sustainability literacy: An education imparts to students the understanding, abilities, and perspectives required to comprehend the interdependence of environmental, economic, and

social systems. It provides individuals with the knowledge and skills necessary to address the world's complex challenges in a sustainable manner.

Education fosters sustainable behavior: Education can influence the values and attitudes of individuals, thereby impacting their conduct in relation to sustainable livelihoods. Enabling individuals to comprehend the ramifications of their behaviours on the economy, society, and environment facilitates their ability to make well-informed decisions that promote sustainability.

Education supports sustainable development: A multidisciplinary approach is necessary for sustainable development, and education is crucial to producing workforce capable of resolving complex problems in a sustainable manner. Essential to sustainable development are skills and knowledge that can be acquired through education, including renewable energy, ecological technology, and sustainable agriculture.

Education promotes environmental stewardship: By fostering conservation practices, educating about environmental issues, and demonstrating the responsible application of natural resources, education can foster environmental stewardship. Individuals can be empowered to assume responsibility for safeguarding the environment and establishing more sustainable world through education.

1.3 National Education Policy 2020 and Sustainable Development in Education

In India, National Education Policy (NEP) 2020 acknowledges the necessity of integrating sustainability principles into all levels of education and stresses the significance of education in promoting sustainable development. Sustainable development is recognised as an essential focal point in the NEP, which incorporates a number of provisions aimed at advancing sustainable development within the realm of education.

Integration of environmental education: The NEP stresses the importance of environmental education integration at all educational levels, from elementary to tertiary. This consists of fostering an understanding of environmental concerns, encouraging sustainable conduct, and cultivating the competencies required for sustainable progress.

Inclusion of sustainability in teacher training: Teachers are instrumental in advancing sustainable development in education, as acknowledged by the NEP, which stresses the importance of incorporating sustainability principles into teacher preparation programmes.

Promotion of experiential learning: Practical and hands-on learning experiences are encouraged by the NEP in order to foster the attitudes and competencies required for sustainable development.

Focus on vocational education: Vocational training and development of skills initiatives that are applicable to the local environment and foster sustainable livelihoods are strongly supported by the NEP.

Use of technology for sustainability: The NEP encourages use of technology in education to raise awareness and encourage sustainable behaviour in recognition of the potential of technology to advance sustainable development.

1.4 NEP 2020 addresses and integrates Education for Sustainable Development

1) Holistic and Multidisciplinary Education

Interdisciplinary Learning: The approach to holistic as well as multidisciplinary education taken by NEP 2020 entails the dismantling of conventional subject silos. Students can develop a more comprehensive understanding of the interrelatedness of real-world challenges by incorporating disciplines such as science, social studies, economics, as well as environmental education. As an illustration, a climate change lecture would encompass not solely the scientific dimensions of greenhouse gases, but also delve into the economic ramifications, social justice concerns, and mitigation and adaptation policies. This interdisciplinary framework promotes the development of students' ability to think holistically and analytically regarding the interplay and mutual impact of various fields.

Flexible Curricula: The policy promotes curricular flexibility, which grants students the freedom to choose subjects from various academic streams in accordance with their personal interests and professional ambitions. This adaptability is especially crucial for ESD, as it allows students to customise their education with regard to subjects that emphasise sustainability. An illustration of this would be a student who, with an interest in sustainable development, enrolls in environmental science, economics, as well as sociology courses, thereby acquiring a comprehensive understanding of the various sectors in which sustainable practices can be applied.

2) Critical Thinking and Problem-Solving Skills

Inquiry-Based Learning: As a result of its emphasis on inquiry-based learning, NEP 2020 motivates pupils to conduct research, inquiry, and exploration. This approach is critical for ESD as sustainability challenges frequently necessitate inventive resolutions and profound comprehension. Through the encouragement of inquiry-based learning, pupils acquire the ability to analyse information critically, pose relevant inquiries regarding sustainability challenges, and investigate and experiment with diverse solutions.

Project-Based Learning: The policy encourages project-based learning, in which pupils engage in endeavours that tackle environmental concerns at the local level. By requiring students to apply theoretical knowledge to real-world scenarios, this experiential method promotes a more profound comprehension of sustainability. Students could, for instance, devise a school recycling programme or participate in community service initiatives aimed at reducing plastic usage, thereby gaining direct experience with sustainable practices and tangible evidence of their efforts.

3) Environmental Awareness and Education

Climate Change: All levels are required to incorporate climate change education in accordance with NEP 2020. This entails comprehending the scientific principles underlying climate change, its worldwide and regional ramifications, as well as approaches for adaptation and mitigation. Acquiring knowledge regarding climate change enables pupils to develop into well-informed members of society, capable of engaging in dialogues and undertaking initiatives that seek to address this worldwide emergency.

Biodiversity: In addition, the curriculum addresses the threats to biodiversity, the value of conservation efforts, and the importance of biodiversity. Biophilia education fosters in pupils an admiration for the diversity of life on our planet and a comprehension of the vital functions that various species perform within ecosystems. This information is crucial in cultivating a sense of accountability with regard to the conservation of biodiversity.

Sustainable Development Goals (SDGs): Student NEP 2020 provides an introduction to the Sustainable Development Goals (UNEPs) of the United Nations and emphasises the significance of education in their realisation. Acquiring knowledge of the SDGs enables pupils to perceive their education within the wider framework of international endeavours to eradicate poverty, safeguard the environment, and guarantee universal prosperity.

4) Integration of Local Contexts and Knowledge

Local Environmental Issues: As a result of incorporating local contexts into the curriculum, pupils gain knowledge of environmental concerns that are pertinent in their own communities. By adopting a localised approach, education becomes more pertinent and influential, as it enables students to establish direct connections with and actively participate in the topics under study. For instance, pupils might investigate the ramifications of deforestation within their locality or scrutinise indigenous methods of water conservation.

Community Involvement: NEP 2020 promotes the integration of local communities into sustainability education curricula. This may involve community service initiatives, field excursions to nearby natural sites, or collaborations with local organisations. Community involvement offers students invaluable practical knowledge and experience in effectively tackling environmental issues, thereby solidifying the concepts and principles that are acquired within the academic setting.

5) Teacher Education and Capacity Building

Teacher Training: In order to proficiently impart ESD, educators must possess a comprehensive understanding of sustainability subjects. Comprehensive teacher training programmes that address environmental science, sustainable practices, as well as pedagogical strategies for ESD are emphasised by NEP 2020. This enables educators to effectively incorporate sustainability principles into their lessons and motivates learners to actively confront these pressing concerns.

Continuous Professional Development: Additionally, the policy emphasises the significance of continuous professional development for educators. This entails offering consistent opportunities for educators to enhance their expertise and competencies in the field of sustainability education. Ongoing education guarantees that educators maintain knowledge of the most recent advancements in sustainable practices and efficacious pedagogical approaches, thereby equipping them to deliver education of the utmost calibre.

6) Technology and Digital Learning

Digital Resources: NEP 2020 utilises technological advancements to improve ESD by creating and distributing digital resources. These resources may comprise virtual simulations, online courses, interactive modules, and courses that address various facets of sustainability. Digital resources facilitate the acquisition of current information and cutting-edge educational instruments, thereby enhancing the overall learning experience.

Online Platforms: The policy endorses the utilisation of digital platforms as a means to link students with educational content and global sustainability initiatives. Students are afforded the opportunity to engage in global collaborations, access an abundance of information, and partake in international initiatives via these platforms. Students are better able to comprehend universal nature of sustainability challenges as well as the significance of concerted effort when they adopt this global perspective.

7) Experiential and Outdoor Learning

Field Trips and Outdoor Education: NEP 2020 promotes the organisation of outdoor educational activities and field excursions by schools, as experiential learning is a fundamental element of ESD. Students may get a deeper awareness of natural systems and human influences via these activities, which enable them to observe and participate with the environment firsthand. An excursion to a national park, for instance, can provide students with a tangible means to learn about biodiversity and conservation efforts.

School Gardens and Eco-Clubs: The policy advocates for the establishment of eco-clubs and school gardens, wherein pupils can engage in endeavours such as refuse management, conservation initiatives, and horticulture. These initiatives facilitate experiential learning and cultivate a sense of environmental stewardship and accountability. Through active participation in sustainability initiatives, students cultivate pragmatic proficiencies and foster a more profound reverence for the environment.

2 Literature Review

(Leder, 2018) The Education for Sustainable Development (ESD) approach places significant emphasis on the cultivation of knowledge, skills, values, and attitudes that are indispensable in the pursuit of establishing a future characterised by sustainability. Environmental Sustainability Development (ESD) endeavours to enable students to engage in proactive measures and arrive at well-informed judgements that address urgent worldwide issues, including but not limited to climate change, biodiversity depletion, and social inequality. Sustainability education (ESD) encompasses a wide range of academic levels, disciplines, and subjects, including early childhood, tertiary, and beyond. It promotes lifelong education and civic engagement while fostering critical thinking, innovation, and creativity.

(Draghici, 2019) Education is widely recognised as the most significant factor in determining the course of human history, as its prospective impact on the economy and ecology is a crucial factor in guaranteeing a sustainable future. In this particular framework, Education for Sustainable Development arises as an essential focal point for the evolving age of scientific investigation and study. A

comprehensive assessment was conducted on the methods, primary objectives, and global well-being implications of Education for Sustainable Development in the broader domain of education. This research offered a global outlook on these crucial elements. The educational and sustainable development goals indices were defined using specific criteria to highlight their distinct functions in monitoring and evaluating growth in these important areas.

(Ram, 2021) Education policy is the means by which a society can achieve a quality education, which is the foundation for its development. Additionally, the NEP 2020 aligns with Sustainable Development Goal 4 (SDG 2030) of the United Nations, which unequivocally declares that equitable education serves as the bedrock for sustainable development over the long term. The government has guaranteed the success of the nation's self-reliance campaign by promoting universal education by distinguishing SDG targets from NEP. NEP 2020 will fortify the nation's entire populace through the acquisition of new competencies and information. In addition, it contains explicit references to a phased revision of the pre-primary through higher education systems in India, as well as curricular and institutional reforms that will assist the country in achieving the Sustainable Development Goals. Consistent with the aforementioned SDG principles, the NEP 2020 is constructed upon five pillars: accessibility, affordability, equity, quality, as well as accountability. The primary aim of NEP 2020 is to position India as a "superpower of global knowledge" through the provision of high-quality education, promotion of innovation, and development of a robust research culture that heavily relies on technology.

(M Raman & Ghoshal, 2021) The purpose of this research is to conduct an analysis of the New Education Policy (NEP), which was formulated as a replacement for the National Policy on Education of 1986. The NEP has the potential to serve as an extensive structure for primary and secondary education, as well as vocational education, in both rural and urban areas of India. The present investigation is founded upon a qualitative examination of a variety of secondary sources of data. This study assessed and validated the effectiveness of multiple exit points that have been implemented as part of NEP-2020. These exit points benefit students by more accurately indicating their level of education and subsequent employability, thereby assisting India in better capitalising on its demographic dividend.

(Sunita & Asst., 2022) The acquisition of knowledge and skills via education improves health and well-being, decreases destitution, and increases employment prospects; thus, education is a fundamental human right. By means of education policy, a society can achieve the educational standard that forms the foundation of all progressive movements. Equally essential to societal advancement is the concept of sustainable development. The objective of sustainable development is to reduce adverse environmental effects that are attributable to human activities. The premise underlying the concept of sustainable development is that contemporary societies must ensure that the requirements of their members are met without compromising the ability of future generations to do the same.

(Kumar Choudhary, 2022) Concurrently ensuring the well-being of the planet's inhabitants and the sustainability of its resources is one of the most essential and crucial responsibilities in the contemporary era. There is a discernible necessity to enhance the effectiveness and efficiency of education within educational institutions. In order to accomplish this, each member of the school community's constituent

body must be educated on the importance of sustainability and recognise their critical position in the present day. It is critical to recognise that education plays a pivotal role in achieving sustainable development, and mere discourse on the notion of "sustainable development" within educational institutions and colleges fails to advance the cause. We must all rise and commence tackling this, not individually but collectively. It is necessary to reevaluate and revisit every aspect of education that is currently being provided in schools. The curriculum of educational institutions has been formulated with sustainable education in mind over time; however, its effective implementation remains a challenge.

(Murali Korada, 2023) Educating instructors is crucial for the development of a cohort that will influence the subsequent generation. Preparing teachers necessitates the incorporation of knowledge and perspectives from multiple disciplines, the cultivation of ethical and moral values, and the refinement of practical skills under the guidance of esteemed mentors. Given the interdisciplinary nature of teacher education and the need for instruction in both pedagogy and high-quality content, it is imperative that all teacher education programmes be carried out inside composite multidisciplinary institutions. The Policy's overarching goal is to cultivate in students a profound sense of national pride that transcends mere intellect, spirit, and actions; additionally, it seeks to foster the development of competencies, values, skills, and attitudes that promote a conscientious dedication to human rights, sustainable development, and worldwide welfare. By doing so, students will exemplify the qualities of an authentic global citizen. However, parallel to this, coordination and integration throughout all educational phases and institutions must be impeccable.

(Yadav, 2023) Sustainable development has grown into a catchphrase, but it is impossible to create an economically, socially, and environmentally sustainable world without putting it into practice. In no way can we disregard the consequences of climate change. Presently the most populous nation globally, India's materialistic lifestyles and rapid industrialization pose a grave threat to environmental sustainability and sustainable development. The objective of sustainable development policy is to reconcile divergent elements such as climate change and economic progress. The promotion of inclusive and equitable quality education is a key objective of SDG 4. NEP (2020) has placed particular emphasis on SDG 4, which is to guarantee high-quality education within the nation. Consequently, this essay emphasises the significance of quality education in advancing sustainable development and focuses primarily on role of quality education and the NEP (2020) in accomplishing the objectives of sustainable development.

(Deepa Pillai, 2023) The influence of education on the trajectory of a nation is among the most critical. Presently, governments and the general public recognise the significance of an educated populace. Economic and social progress is contingent upon the education of the populace. In contrast to this, progress would be extremely difficult if the populace were illiterate. The condition of illiteracy is associated with incompetence, incapability, adherence to superstitions, and deceptive convictions. Thus, influencing their transformation would prove to be a challenging endeavour. There is a worldwide recognition that education may only partially mitigate the existing disparities. As a consequence, the

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United Nations (UN) has formulated a set of sustainable development goals (SDGs) with the aim of effecting global change by 2030.

(Radha & Arumugam, 2023) For the sake of excellent education and sustainable development at India's universities, this article explains why it would be a good idea to link the National Education Policy (NEP) 2020 with the SDGs. Concerning the advancement of learning outcomes, the promotion of access to high-quality education, and the encouragement of innovation and research, the NEP 2020 as well as the SDGs both have comparable aims. More than that, higher education institutions in India can assist their students in developing the knowledge, skills, and attitudes necessary to contribute to sustainable development within India and around the world by incorporating the SDGs into their operations and curricula. Additionally, instances of Indian higher education institutions that have embraced and integrated the SDGs into their operations and curricula are presented in the article. It is anticipated that the alignment of NEP 2020 with the SDGs will encourage the integration of SDGs to higher education in India.

(Tushar Dhar Shukla et al., 2023) This research paper aims to perform an exhaustive examination of the complex correlation that exists between the Sustainable Development Goals (SDGs) of the United Nations and India's National Education Policy 2020. The central emphasis of this analysis pertains to the collaborative effort in providing high-quality education that is accessible to all individuals, overcoming any obstacles. By conducting a thorough analysis of the core principles of NEP 2020 and comparing it with relevant Sustainable Development Goals (SDGs), this paper aims to provide valuable perspectives on India's progress towards achieving its objective of creating an educational environment that is inclusive and provides equal opportunities for all students. The clarification of this correlation highlights the mutually beneficial connection that exists between domestic policy frameworks and the comprehensive international agenda for the sustainable development. Furthermore, this investigation illuminates the approaches and frameworks that form the foundation of India's diverse endeavours to establish a unified course towards cultivating an educational environment that not only promotes learning but also enables individuals to actively participate in the discourse on sustainable development.

(Rao, 2024) National education policy 2020 is an initiative to close the defects in our current education system that was conceived by the newly formed government at the time. The primary objective of this strategy is to realign the education system with a greater emphasis on practical application rather than theoretical frameworks. A review and specific research study have been conducted in this paper to determine the advantages and disadvantages, in addition to other factors, that can be accomplished with the implementation of the 2020 education policy. The literature review that commences the paper provides an overview of prior research and scholarly viewpoints concerning the NEP. It describes modifications to the school curriculum, assessment methodologies, teacher education, as well as governance structures, among other significant aspects of the policy. Additionally, the historical context, policy discourse, as well as global influences that have shaped the NEP's development are examined in the literature review.

3 Conclusion

The incorporation of Education for Sustainable Development into NEP 2020 signifies a holistic strategy aimed at equipping students with the necessary skills to confront forthcoming obstacles. This paper provides a concise overview of the relationship between the SDGs and the education system as outlined in NEP 2020. The policy seeks to foster a generation of knowledgeable, accountable, and proactive individuals by emphasising experiential learning, critical thinking, and local context integration. To achieve the goals and promote a sustainable culture in the school system, it is essential that these requirements be put into practice effectively.

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STEM Education: Present Status and Future Direction

Dr. Malcolm Homavazir¹, Dr. Zuleika Homavazi^{2*}

¹Associate Professor, ATLAS SkillTech University

²Professor, ATLAS SkillTech University.

Abstract

The most effective way to develop and utilise a nation's enormous resources and capabilities for benefit of individuals, society, nation, and the world is to provide universal, high-quality education. The Union Cabinet of India granted approval to the National Education Policy 2020 (NEP 2020), which establishes the objectives for India's forthcoming education system, on July 29, 2020. By substituting the National Policy on Education from 1986. NEP 2020's alignment with promoting STEM (science, technology, engineering & mathematics) education, systematic implementation are the subjects of this conceptual paper.

Keywords: STEM, NEP 2020, Education, Present scenario, Future Scenario.

1 Introduction

Constantly conforming to the shifting demands of society as well as technological and intellectual progress, the educational landscape is in a constant state of change. STEM (Science, Technology, Engineering, and Mathematics) education has become a crucial component in this paradigm shift in recent decades. STEM education gives individuals the essential competencies required to innovate and adapt in a technologically dynamic world. STEM education is vital for societal advancement, not just for the professional success of individuals. STEM education equips students to tackle intricate challenges

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Dr. Malcolm Homavazir¹, Dr. Zuleika Homavazi²

such as climate change, advancements in healthcare, and technological innovation through the cultivation of critical thinking, ingenuity, and problem-solving skills. (Marzuki et al., 2024)

Curriculum as well as educational policies that are in accordance with contemporary technological and societal demands are facilitated. In contrast, the study emphasises to students the fundamental competencies and understandings necessary to prosper in a contemporary, technology-driven society. Additionally, a workforce that's well-equipped to foster innovation and economic expansion benefits the greater community. The results of the study underscore the importance of implementing STEM education in tangible, real-life contexts. The article examines the ways in which different pedagogical approaches, such as inquiry-based learning and project-based learning, can substantially improve student engagement and academic achievements. Additionally, approaches to increasing the accessibility and inclusivity of STEM education are explored in the study, guaranteeing that students from various backgrounds can derive advantages from it.

Background of STEM

Progress in Education STEM education, which comprises Science, Technology, Engineering, and Mathematics, originated in the United States after Sputnik, when it became evident that enhanced scientific education was crucial for sustaining global competitiveness. Over the course of time, STEM education has progressed beyond being a simple fusion of four disciplines. This methodology embodies an interdisciplinary strategy that seeks to amalgamate these fields of study into a unified educational framework grounded in practical, real-life scenarios. This approach to education is based on the idea that these four fields are fundamental to a well-rounded education that includes the ability to think critically and solve problems.

The Evolution of STEM Education

The origins of STEM education can be identified in United States during the Cold War, specifically in the post–World War II era, when maintaining technological and scientific superiority became an increasing concern. The Soviet Union's 1957 Sputnik launch constituted a turning point that prompted an increased focus on science and technology schooling in the United States. During this era, substantial federal funding was allocated towards scientific education, emphasising the strategic significance attributed to STEM disciplines. A transition from the conventional approach of teaching mathematics, science, technology, and engineering as distinct disciplines into a more integrated framework occurred during the latter half of the 20th century. The impetus for this transition stemmed from the recognition that practical challenges transcend disciplines and necessitate a comprehensive comprehension of all four STEM elements. In the early 2000s, the acronym "STEM" was introduced to represent this interdisciplinary approach to instructional and learning in these fields.

The Alliance of NEP 2020 and STEM

STEM Learning is an educational and developmental approach that incorporates the disciplines of science, technology, engineering, and mathematics. STEM education has developed over time into a

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multidisciplinary philosophy that is essential for instilling in students cutting-edge abilities such as creativity, critical thinking, and problem-solving. Although its necessity and significance have been acknowledged for quite some time, ubiquitous technological progress has elevated it to the status of an indispensable prerequisite for contemporary educational systems.

The promotion of scientific literacy and the cultivation of a scientific inclination have been subjects of considerable discourse in India. However, within our educational framework, STEM education continues to be undervalued. Although numerous innovations have been rapidly implemented, such as smart classrooms, e-learning, and assessment tools, STEM education has failed to proliferate at the rate that it deserved. Insufficient provision of fundamental components such as curriculum, teaching and learning materials, specialised laboratory facilities, do-it-yourself kits, and so forth, continues to impede STEM education in schools. STEM education has historically been perceived as a diversion within a system which has predominantly relied on rote learning and examinations. This approach effectively prevented the development of a research culture and relegated learning to a secondary position. The much-anticipated Nation Education Policy 2020 (NEP) may ultimately serve as the catalyst necessary to enhance STEM education in India, despite the fact that this disparity has been acknowledged in general and some progress has been made in this regard over the past few years.

"While popularising science and fostering a scientific temperament have been subjects of considerable debate in India, STEM education continues to be undervalued within our educational system."

The Union Cabinet granted approval to the NEP on July 29th, 2020. NEP was anticipated to cover the numerous voids in our current educational system, and in the majority of respects, it has performed admirably. It serves as a foundational structure for numerous reforms aimed at filling in the deficiencies. One of the primary objectives of NEP is to replace the current method of rote learning in education with hands-on, evidence-based learning. NEP acknowledges and establishes a trajectory for an interdisciplinary educational approach that is in line with the tenets of STEM education. NEP advocates for increased experiment-based instruction and hands-on learning in institutions. It also acknowledges the importance of instilling scientific rigour, evidence-based learning, and coding abilities in students.

Coding instruction beginning in sixth grade is an extremely welcome development that will enhance STEM education. Incorporating Artificial Intelligence (AI) and block programming into school curricula will provide students with a firm foundation in essential skills necessary for vocations in the twenty-first century. STEM is being brought to life in school classrooms through numerous initiatives from the government and EdTech companies to establish STEM Labs utilising emerging technologies such as 3D printing, electronics, the Internet of Things, and sensors. Given the emphasis that several nations, including South Korea, Japan, and Germany, place on STEM education to advance their economies and societies, expediting the implementation of STEM education in India could prove to be an excellent initiative for students and societies alike. The NEP will establish the ideal framework to promote STEM education, which will be crucial to achieving the government's goal of Atma Nirbhar Bharat.

1.1 Advantages of STEM Education in India

Critical Thinking and Creativity Development: STEM education fosters in students aptitudes for critical analysis, innovative thinking, and resolution of complex issues.

Hands-on Learning and Practical Application: A STEM education framework promotes experiential learning and teaches students through hands-on activities. This practical approach enhances the capacity for strategic reasoning and decision-making.

Multifaceted Skill Development: Science, technology, engineering, and mathematics (STEM) lessons impart several skills, such as reasoning, analysis, creativity, collaboration, invention, critical thinking, and problem solving.

Understanding Everyday Technology: STEM education equips students with practical knowledge of the technologies and devices they utilise on a daily basis by facilitating their comprehension of their operation.

Encourage Experimentation: STEM education is predicated on experimentation, which permits pupils to investigate alternative resolutions to challenges and obstacles.

1.2 STEM Education: Present Scenario (NEP 2020)

Officially unveiled by the Indian government, the National Education Policy (NEP) 2020 signifies a substantial paradigm shift within the educational sphere of the nation. NEP 2020 seeks to revolutionise the current system by placing greater emphasis on the value of interdisciplinary and holistic education. Education in the STEM (Science, Technology, Engineering, and Mathematics) fields is a pivotal subject of emphasis in this policy, indicative of the increasing acknowledgement of its capacity to stimulate economic expansion and innovation.

Holistic and Multidisciplinary Approach: By integrating STEM disciplines with the humanities, arts, and social sciences, NEP 2020 promotes a comprehensive, multidisciplinary education system. Critical thinking, originality, and problem-solving abilities are intended to be fostered through this method.

Early Introduction and Integration

- **Foundational Stage:** NEP 2020 supports the inclusion of STEM principles in the early childhood curriculum (ages 3 to 8). Activity-based and play-based learning approaches are suggested for engaging young students with fundamental scientific and mathematical concepts.
- **Middle Stage:** Students in middle stage (ages 11-14) are strongly encouraged to participate in practical initiatives and experiential learning. Experimentation and practical application are utilised to establish a solid foundation within STEM subjects during this phase.

Flexibility in Curriculum and Choice of Subjects: The flexible curriculum structure of NEP 2020 permits students to select courses in accordance with their individual inclinations. In an effort to promote interdisciplinary study and lessen the rigorous demarcation between academic disciplines, this flexibility is intended to be implemented.

Emphasis on Coding and Computational Thinking: Computational thinking and coding are introduced during the middle school years (6th through 8th grades). The purpose of this early exposure programme is to provide students with fundamental abilities that are crucial in the digital age, including problem-solving and logical reasoning.

Focus on Experiential Learning and Inquiry-Based Approach: Experiential instruction and an inquiry-based method for teaching STEM subjects are encouraged by the policy. This entails the implementation of problem-solving exercises and real-world applications in order to augment students' comprehension and involvement.

Integration of Technology in Education: The significance of incorporating technology into education is emphasised by NEP 2020. It is recommended that educators make use of virtual laboratories, digital tools, and online resources in order to offer students personalised and interactive learning experiences.

Teacher Training and Professional Development: The policy acknowledges the imperative of instructors engaging in ongoing professional development. The proposition is to develop specialised training programmes in STEM education that would furnish educators with contemporary pedagogical approaches and technological expertise.

Assessment Reforms: NEP 2020 promotes the transition from memorization-based learning and conventional examinations to competency-based evaluation. This encompasses formative evaluations that centre on the comprehension and implementation of STEM principles by the students.

1.3 STEM Education: Future Scenario

In order to equip students for the complexities of the twenty-first century, the National Education Policy (NEP) 2020 of India prioritises STEM (Science, Technology, Engineering, and Mathematics) education and proposes an educational paradigm shift. In accordance with NEP 2020, the future of STEM education will be marked by technological integration, interdisciplinary learning, innovative pedagogical approaches, and an equitable and inclusive school system.

1. Early Exposure and Foundation Building

Activity-Based Learning: Students will initiate STEM education by participating in play-based as well as activity-based learning during foundational stage (ages 3 to 8). This methodology is intentionally crafted to incite inquisitiveness and enthusiasm for scientific principles via investigation and experiential learning.

Coding and Computational Thinking: Students will be prepared for a future dominated by technology by becoming proficient in coding and computational reasoning beginning in middle school (grades 6-8). Exposure to these skills at an early age will augment one's capacity for logical reasoning and problem-solving.

2. Technology Integration

Digital Classrooms: In the forthcoming era of STEM education, digital classrooms outfitted with smart boards, tablets, as well as internet connectivity are anticipated to be extensively implemented. These classrooms will foster learning experiences that are both interactive and captivating.

Virtual Labs and Simulations: Students will be able to conduct simulations and experiments in virtual laboratories, gaining practical experience without being constrained by the resources of physical laboratories. This will facilitate a more profound comprehension of engineering practices and scientific principles.

Artificial Intelligence (AI) in Education: Platforms powered by AI will provide individualised learning experiences by adjusting to the specific requirements of each pupil and delivering immediate feedback. Smart tutoring systems are expected to aid students in comprehending intricate STEM disciplines.

3. Interdisciplinary and Experiential Learning

Project-Based Learning (PBL): Project-based learning, in which students solve real-world problems requiring the implementation of multiple STEM disciplines, is encouraged by NEP 2020. This methodology promotes teamwork, innovation, and analytical reasoning.

STEAM Education: The integration of the arts through STEM (STEAM) disciplines will foster innovation and originality. The incorporation of artistic viewpoints into technological and scientific instruction will foster the development of comprehensive problem-solving strategies.

4. Inclusive and Equitable Education

Access to Resources: Every pupil, irrespective of socioeconomic status, will be provided with equitable access to high-quality STEM education. This entails furnishing adequately outfitted science laboratories, digital devices, and internet connectivity to underserved regions.

Diversity in STEM: The participation of the underrepresented groups, such as females and pupils from marginalised communities, in STEM fields will be the primary objective of initiatives. Scholarships and programmes will be established in an effort to further their academic and professional ambitions.

5. Teacher Training and Professional Development

Continuous Professional Development: Educators will participate in periodic professional development sessions to ensure they are well-versed in the most recent STEM education methodologies as well as technologies. Programmes for professional development will furnish educators with the necessary competencies to instruct and motivate students in STEM disciplines.

Mentorship and Collaboration: Educators will receive mentorship from seasoned industry professionals and experts, who will offer guidance and exchange best practices. The exchange of resources and concepts among educators will be facilitated by collaborative networks.

6. Assessment and Evaluation Reforms

Competency-Based Assessment: Subsequent assessments will shift their emphasis from mere memorization to the evaluation of students' comprehension and implementation of STEM principles. Competency-based evaluations will assess problem-solving and practical aptitudes.

Portfolio-Based Assessment: Students shall assemble portfolios that will effectively demonstrate their research, experiments, and projects. This all-encompassing evaluation approach will furnish a holistic perspective of their educational progression and accomplishments.

7. Global Collaboration and Partnerships

International Collaborations: By forming alliances with international educational organisations and institutions, STEM education will be of a higher calibre. International competitions, collaborative research initiatives, and exchange programmes will all afford students a wide range of educational experiences.

Industry-Academia Collaboration: The integration of industry and academic collaboration will serve to connect theoretical concepts with their practical implementation. Through internships, industry initiatives, and guest lectures, students will gain practical experience in STEM fields.

2 Literature Review

(Wadwale, 2020) After 34 years, the National Education Policy was established following more than four years of nationwide deliberations led by preeminent academicians from our universities. The document's profound recommendations—including the establishment of research universities, the use of technology to improve access to quality education, and a single regulator for "light but tight" regulation of higher education—have earned it the reputation of a policy document with limitless transformative potential. In order to foster innovation, entrepreneurship, and the establishment of sizable multidisciplinary institutions. Presently, it is widely acknowledged that education serves as a self-sustaining resource and a means to address emerging requirements. Moreover, innovation results from both necessity and adversity. The NEP-2020 places confidence in the academic and research community's capacity to make significant contributions to the global body of knowledge, garner international recognition, and position India at the forefront of academic nations.

(Singh, 2020) India's education sector has undergone a paradigm shift with the New Education Policy 2020, which seeks to revolutionise the nation's approach to development and learning. The present research paper investigates the ramifications and difficulties that arise from the execution of NEP 2020. The research investigates the potential consequences of the policy's comprehensive methodology, incorporation of technology, multilingualism, curriculum flexibility, assessment modifications, and teacher preparation. Moreover, it explores the obstacles encountered during the implementation of the policy, including the allocation of resources, opposition to change, preservation of academic standards, scarcity of teachers, bridging digital divide, and guaranteeing inclusiveness for a wide range of students.

(Aithal & Aithal, 2020) A nation must have a well-defined and forward-thinking education policy at the secondary and tertiary levels, as education is the engine of economic and social development. In order to optimise effectiveness, various nations implement distinct education systems that take into account their respective cultures and traditions, as well as distinct phases of development at the secondary and tertiary levels. The Education Policy recently unveiled by the Government of India is a product of the recommendations put forth by an expert committee presided over by Dr. Kasturirangan, a former chairman of Indian Space Research Organisation (ISRO). This paper examines and contrasts a number of higher education system-announced policies with the system that is presently in effect.

(Banerjee et al., 2021) It is critical that all levels of educational institutions implement an innovative and well-defined education policy that contributes to social and economic progress. In accordance with their cultural heritage and customs, numerous nations have developed diverse education systems and life stages to ensure academic success at the collegiate level. A few months ago, the Indian government issued a new education policy under the direction of a committee led by Dr. K. Kasturirangan. Additionally, he led the Indian Space Research Organisation (ISRO) as its former chairman. The committee was established in June 2017, and its report was submitted on May 31, 2019. The primary focal points of this paper encompass a range of educational stage characteristics, key principles underlying the new policy, distinctions between the previous National Education Policy of 1986 and the present National Education Policy of 2020, various implementations within the higher education system, innovations incorporated in NEP 2020, principal ramifications of NEP 2020, benefits of higher education as outlined in NEP 2020, and recommendations for enhancements.

(Sahoo, 2021) In the twenty-first century, the world is expanding at an accelerated rate due to the rapid advancement of science and technology. It has significantly altered the way in which people live and social processes operate. Living in a changing scenario has presented an increased number of challenges. Difficult and intimidating is the task of equipping students to navigate and thrive in the twenty-first century. Students must acquire a variety of skills and knowledge and adopt an interdisciplinary perspective on the world in order to remain current. This study utilises and evaluates policies, in particular the National Curriculum Framework 2005 (NCF 2005) as well as National Education Policy (NEP 2020), to investigate the contribution of Science Education to the development of 21st Century Learning Skills. These skills have been suggested as a means to equip students with the necessary abilities to navigate the complex challenges of the twenty-first century.

(Naveen, 2021) The NEP, 2020 establishes a structural blueprint for the comprehensive overhaul of Technical Education (TE) to align with the demands of an Indian society that is knowledge-driven and undergoing rapid transformation. This article offers a thorough examination of the NEP's equitable and logical framework of viewpoints, in addition to other pertinent details regarding the mechanisms underlying qualitative transformations in TE. NEP, 2020 objectives include expanding the scope of technical education (TE) to include degree and diploma programmes, fostering closer collaborations between industry and higher education institutions (HEIs) to promote innovation and research, leveraging technology to bridge the gap between technical education and other disciplines, strategizing

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to incorporate technical education into multidisciplinary education institutions as well as programmes, and equipping professionals with expertise in critical areas.

(Irwanto et al., 2022) STEM education is currently a critical factor in determining the competitiveness and economic development of nations. The objective of this systematic review was to identify ten-year research trends within STEM education. The analysis incorporated a compilation of 336 studies that had been published in reputable scientific journals, including Science Education, Research in Science Education, Journal of Science Education, International Journal of Science Education, and Science Education. The temporal scope was confined to the years 2011 through the latter part of 2020. Then, in order to ascertain the most recent research trends and the current state of STEM education, an examination was conducted on all sample papers. This examination encompassed various metrics such as the number of papers published annually, the categories of research conducted, the ranking of countries, and number of authors. In order to gather data, the formula suggested by Howard et al.

(Venkat Iyer Associate Professor & Kalyandurgmath, 2022) Education is fundamental to achieving one's utmost capabilities, fostering an equitable and just society, and propelling the advancement of the nation. Every nation must have a clearly defined, forward-thinking, and futuristic education policy, given that education is the primary catalyst for both economic and social development. Education policies vary across countries in accordance with their respective traditions and cultures. The most effective way to develop and utilise a nation's enormous resources and capabilities for the good of individuals, society, nation, and the world is to provide universal, high-quality education. The Union Cabinet of India granted approval to the National Education Policy 2020, which establishes the objectives for India's forthcoming education system, on July 29, 2020. By substituting the National Policy on Education from 1986. NEP 2020 aims to establish an all-encompassing structure encompassing primary education, higher education, vocational training, and more.

(Sharma, 2023) Education and the economy are the two 'E's' that are essential to the growth and development of any nation. The economic development of a state is significantly influenced by education (Idris et al., 2012). Following China, India has third-largest tertiary education system in the globe. Primary education is the foundation of the Indian educational system, which is succeeded by secondary education at the school level and higher education comprising four years of doctoral studies, three years of postgraduate study, and two years of graduation. Universities that provide degrees include those that are central, state, deemed, institutes of national significance, private, associated with the University, or otherwise recognised as having a strong academic reputation. Education is fundamental to discovering and honing human potential for the holistic development of both the individual and the nation. Education policies are periodically formulated in order to guide the education system in accordance with present and future needs.

(Soni, 2023) The National Education Policy 2020, or NEP 2020, is a policy document that was officially declared by Government of India in July 2020. Through an emphasis on holistic as well as multidisciplinary education, the promotion of research and innovation, and the integration of technology into the learning process, the NEP 2020 intends to revolutionise the Indian education system. The NEP

2020 acknowledges the pivotal significance of libraries in fostering a culture of continuous learning and reading. The strategy highlights the importance of public and school libraries by ensuring they have sufficient funding, staff, and materials to support their mission.

(Das et al., 2023) The inaugural education policy of twenty-first century, the New Education Policy 2020, was unveiled on July 29, 2020. In a developing country such as India, higher education is vital because it fosters human development. Since its independence, India's higher education system has expanded astronomically. It will facilitate the development of the nation through the distribution of specialised knowledge and skills. The objective of this research is to examine the effects of NEP 2020 on higher education system. Furthermore, it underscores the challenges and obstacles that the present higher education system in India confronts. The data utilised in this research were descriptive secondary sources that were analysed in accordance with the study's objectives.

(Das & Das, 2024) The integration of contemporary discoveries or technologies into the curriculum does not constitute innovation. On the contrary, its design ought to cultivate ingenuity, analytical reasoning, and the resolution of challenges. Additionally, it ought to encompass exercises that foster collaboration and communication among instructors and learners. By making a minor deviation from the conventional instructional approach, the individual enhances the efficacy of conveying the significance of the concept (Sarta, 2022). Students' curiosity is stimulated by creative education, which may be more conducive to conceptualization (Singh, 2021).

(Marzuki et al., 2024) This extensive article explores the dynamic domain of STEM education, which is an essential element in the contemporary educational environment. The review emphasises the transformation of STEM education from a simple amalgamation of four disciplines to a comprehensive, interdisciplinary strategy that is vital for fostering the growth of problem-solving and critical thinking abilities. A technology-driven global economy and the need for innovative and analytical abilities necessitate STEM education in order to adequately equip students for complexities of the twenty-first century. Aspects of STEM education that are examined in the review include issues of access and equity, the requirement for specialised educator training, and student engagement. This article examines the effects of STEM on students' academic achievement, skill growth, and readiness for the profession, drawing attention to the ways in which STEM education improves both personal and social opportunities for employment.

(Ghatak, 2024) Article 21 of the Indian Constitution guarantees the inalienable right of every individual to live via dignity and without prejudice. A quality education ensures that every person has the opportunity to lead a dignified existence and contributes to the pursuit of social justice. The National Education Policy, 2020 recognises the principle of "putting the last first" and deliberates on various approaches to ensure that all individuals have access to a high-quality education. Examining the perceptual lucidity of school instructors regarding the implementation of the National Education Policy (NEP), 2020 within educational institutions was the objective of this research. The study investigated how the socioeconomic status and level of knowledge regarding NEP, 2020 of educators affect their perspectives. Information was gathered utilising a variety of qualitative and quantitative data in

accordance with a descriptive research design. In order to deliberately select willing participants for the research, Purposive Sampling was employed from two distinct minority institutions situated in Ranchi, Jharkhand.

3 Conclusion

This paper focuses primarily on STEM and its relationship with NEP 2020, as well as the current and future scenarios surrounding it. Conversely, NEP 2020 endeavours to establish a resilient STEM education infrastructure. Furthermore than furnishing students with fundamental knowledge and abilities, this system will motivate them to emerge as trailblazers and authorities in their specific domains.

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Gender Parity in Education: Progress, Gaps, and Policy Implications

Dr. Roopali Kudare^{1*}

¹*Professor, PCET's S B Patil Institute of Management Nigdi Pune.*

Abstract

The existence of gender inequality has persisted throughout history. Even though there have been several attempts to promote gender equality and eradicate current gender stereotypes, it is certain that school textbooks and the course design students are required to take serve a part in maintaining gender-exclusivity. NEP 2020 is the foremost education policy of the twenty-first century and focuses on directing India's numerous developmental requirements. It is now apparent that this is a critical moment to assess the extent to which India's New Education Policy addresses gender disparities in education across all levels.

Keywords: NEP 2020, Gender, Education, Women Rights, International Practices, Limitation, Impacts.

1 Introduction

Every provision of the Indian Constitution, including the Preamble, the Fundamental Rights, the Fundamental Duties, and the Directive Principles, contains the idea of gender equality. In addition to granting women equality, the Constitution also confers authority on the government to implement positive discrimination measures that benefit women. Despite numerous initiatives and the implementation of the 'Right to Education Act, 2009' by the Indian government to guarantee free and mandatory education for children aged 6 to 14, illiteracy remains a significant problem, particularly among the female population. The increased participation of women in all sectors has contributed to the advancement and expansion of our nation's economy. The increased participation of women in diverse sectors has contributed to the rise in India's literacy rate. The education of women is vital to the complete

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development of the nation. A woman with an education is capable of managing both her personal and professional life.

A woman who is educated possesses the knowledge, abilities, and self-assurance necessary to be a more effective parent, employee, and citizen. Additionally, a educated woman will be more profitable and productive at work. Indeed, the return on investment in education is frequently greater for females than for males. An educated female populace stimulates economic expansion and increases a nation's productivity. Certain nations incur annual losses exceeding \$1 billion due to the inequitable education of females in comparison to boys. As a result, India's literacy rate has long been an issue, although there have been several government and non-governmental organisation (NGO) efforts to raise awareness about the value of literacy, especially among women. The government has also enacted stringent regulations regarding the equality of women. The objective of Sustainable Development Goal (SDG) four is to "ensure quality education that is accessible and equitable for all individuals and promote opportunities for lifelong learning" by the year 2030. Given this context, it is encouraging to see that India's New Education Policy 2020 (NEP 2020) includes gender inclusive viewpoints among its several other objectives.(Chandrasekarayya & Kumari, 2021)

1.1 Key provisions and objectives of the NEP 2020 related to gender equality and empowerment

The Government of India has implemented the National Education Policy (NEP) 2020, which comprises a range of provisions and goals designed to advance gender equality and empowerment in the realm of education. The policy acknowledges the critical nature of addressing gender disparities as well as guaranteeing equal opportunities for all persons, irrespective of their gender. The following is a synopsis of the principal provisions and goals of NEP 2020 concerning gender empowerment and equality:

- 1. Inclusive Education:** Ensuring equitable access to high-quality education for girls and boys of all socioeconomic backgrounds is a fundamental principle emphasised in the NEP 2020. It advocates for elimination of gender-based discrimination, diversity, and the establishment of an inclusive and secure learning environment.
- 2. Gender-Sensitive Curriculum:** The policy prioritises the establishment of a curriculum that is attuned to gender considerations, aims to dispel gender-based preconceived notions, advance gender parity, and cater to the unique requirements and preferences of both boys and girls. Its objective is to integrate the contributions, experiences, and perspectives of men and women from a variety of academic disciplines.
- 3. Elimination of Gender-Based Violence:** The NEP 2020 acknowledges the widespread occurrence of gender-based violence in academic establishments and endeavours to establish a secure and protected setting for every student. The organisation promotes the rigorous enforcement of the anti-harassment policies and the creation of systems to proactively detect and prevent gender-based violence within collegiate and secondary institutions.

4. **Women's Empowerment in Education Leadership:** The policy prioritises the advancement of women into leadership positions in education, encompassing administrative and managerial responsibilities. It promotes the selection of women for positions of authority and provides assistance to initiatives that develop the skills and knowledge of staff in order to increase the number and representation of women in academic establishments.
5. **Bridge Gender Gaps:** The NEP 2020 acknowledges and endeavours to narrow the prevailing disparities between genders in terms of academic achievement. The initiative prioritises the establishment of essential support systems, scholarships, as well as mentorship programmes as means to promote the enrollment and continued attendance of female students in secondary and tertiary education.
6. **Skill Development and Entrepreneurship:** The policy acknowledges the significance of entrepreneurialism and skill development in advancing gender empowerment and equality. It advocates for the convergence of vocational schooling, development of skills, and entrepreneurship initiatives, thereby guaranteeing equitable opportunities and access for women and girls to engage in economic endeavours and cultivate their aptitudes.

1.2 Intersection of NEP 2020 And Women's Rights

There is a distinctive and auspicious opportunity to tackle the complex obstacles encountered by women in India through the convergence of the National Education Policy 2020 and women's rights. NEP 2020, by virtue of its ambitious objectives and paradigm-shifting educational agenda, possesses the capacity to substantially contribute to the progression of women's rights across various domains:

1. **Empowering Female Teachers:** The policy recognises the crucial significance of female educators in serving as mentors and role models for young girls. NEP 2020 promotes the augmentation of female educators, specifically in remote as well as rural regions, with the aim of furnishing young girls with influential female exemplars. Supporting female educators by means of professional development initiatives guarantees their capacity to mentor and motivate young women in their endeavours to attain academic and vocational aspirations.
2. **Holistic Curriculum:** NEP 2020 advocates for an all-encompassing and competency-driven curriculum that surpasses the conventional method of memorization. This curriculum reform provides females with practical skills which are applicable across multiple domains, thereby benefiting them. By fostering creativity, problem-solving, and critical thinking, it enables young women to achieve academic and professional success.
3. **Gender Sensitization:** The policy acknowledges gender sensitization as an essential component. In an effort to promote gender equality and heighten instructors' and students' awareness of gender-related issues, the institution implements gender sensitization programmes. The objective of NEP 2020 is to encourage a school environment that is more inclusive and respectful in order to challenge and eliminate gender discrimination as well as stereotypes.

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Although NEP 2020 presents a distinctive opportunity to tackle these obstacles, it is critical to recognise that the achievement of desired results is of the utmost importance. Ladies and gentlemen, in order for the educational reforms to be completely realised, it is crucial that the gender-sensitive provisions and initiatives of the policy be put into practice. In addition, complementary initiatives and policies that target specific gender-related issues and broader socioeconomic disparities will be essential for NEP 2020 to achieve its maximum potential in promoting the rights of women in India.

1.3 Gender inclusive perspectives

1. Gender Inclusion Fund

A 'Gender-Inclusion Fund' will be established by the Indian government in order to strengthen the country's ability to offer quality education that is fair and equal to all females and transgender students. The allocation of funds will be contingent on the states' ability to support and expand successful community-based interventions that tackle specific obstacles in the local context that hinder the participation and access of female and transgender children to education. Funds will also be available for state implementation of priorities identified by the central government as crucial in facilitating the education of these children (e.g., bicycles, sanitation facilities, toilets). Additional 'Inclusion Fund' initiatives shall be established to tackle comparable barriers to access for "Socio Economically Disadvantaged Groups" (SEDGs). Primarily, this policy seeks to eradicate any residual inequities that may exist regarding the educational opportunities (including vocational education) accessible to children belonging to socioeconomically disadvantaged groups or any gender.

2. Safety and Rights

Girls are entitled to the same educational opportunities as boys. Girls with an education are capable of making well-informed decisions from a significantly greater variety of alternatives. Providing females with an education not only strengthens communities and economies but also saves lives. "Every female, irrespective of her location or personal situation, is entitled to education. "Irrespective of their position or the resources at their disposal, every leader has an obligation to ensure and safeguard this right. "Safeguarding the well-being and liberties of every child, with a specific focus on retaining females in educational institutions. Regardless of gender, locality, or personal circumstances, every child is entitled to receive an education of high quality.

3. Bridging Gender Gap

Prioritise the reduction of the gender gap and ensure that all individuals have access to equal opportunities. Despite consistent efforts by the Indian education system as well as successive government policies to close gender and social category gaps at all levels of schooling, significant inequalities persist, particularly at the secondary level, and this is especially true for historically underrepresented socioeconomically disadvantaged groups in education. Gender identities—specifically those of women and transgender people—can be utilised to essentially classify Socio-Economically Disadvantaged Groups (SEDGs). Boys from the same context are four times less likely to be enrolled in education than

girls. Additionally, the impoverished females have the lowest probability of finishing primary school. Based on the findings of the Demographic and Health Survey-2006, the proportion of females who are not enrolled in school in India exceeds that of boys by 23% or 21,800,000 children. The rate of children residing in rural areas dropping out of school is 22%, which is greater than the rate of children residing in urban areas, which is 14%. The highest percentage of children not attending school are those in the lowest wealth quintile (36%). According to the Annual Status of Education Report, private schools have a preponderance of male students enrolled, whereas government pre-schools and schools have a higher proportion of female students.

4. Kasturba Gandhi Balika Vidyalayas (KGBVs)

Gender disparities continue to endure, particularly in underprivileged communities and rural regions. Upon examining enrollment trends, it is evident that there are still substantial disparities between the numbers of elementary school females and boys enrolled, particularly in upper primary levels. The Indian government-run Kasturba Gandhi Balika Vidyalayas have taken this on as a priority in their efforts to make high-quality education more inclusive and accessible. Key beneficiaries of the KGBVs scheme, which is administered by the Sarva Shiksha Abhiyan, are young women from economically disadvantaged backgrounds, minority communities, and households living below the poverty line residing in Educationally Backward Blocks. The program's objective is to furnish them with residential elementary educational facilities. One of the primary goals of Samagra Shiksha is to eliminate religious and gender-based segregation from all levels of education. As a result, in order to promote female education, the Scheme has expanded/consolidated the Kasturba Gandhi Balika Vidyalayas at the upper primary level and the Girls Hostels at the secondary level to offer residential and academic amenities for students up to Class XII.

5. Policies targeted for Girls

Assign the task of developing policies and initiatives that specifically target female pupils belonging to socioeconomically disadvantaged groups. Ensuring that females are educated has the capacity to make well-informed decisions from an extensive array of alternatives, thereby contributing to the strengthening of families, communities, and economies. Girls will have a better understanding of their rights and what is necessary to promote health and well-being; they will also have more opportunities to obtain satisfying employment and realise their maximum potential.

6. Gender Sensitivity

Curriculum integration is required for "gender sensitivity." In addition to gender sensitization and sensitization towards all underrepresented groups, knowledge and awareness of how to instruct children with specific disabilities will be fundamental components of all teacher education programmes with the aim of reversing their underrepresentation. In addition to implementing curricular modifications that reflect the principles of an inclusive school environment, the introduction of this novel school culture—facilitated by educators, trained social workers, and counsellors—will serve to galvanise students.

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Human values lessons will begin early in the school year and include topics like nonviolence, equity, gender equality, tolerance, human rights, empathy, and respect for all people.

Additionally, in order to foster an awareness of and appreciation for diversity, it would encompass a more comprehensive understanding of specific cultural, religious, linguistic, and gender identity aspects. The elimination of biases and stereotypes from the school curriculum will be accompanied by an increased incorporation of content that is pertinent and relatable to diverse communities. The new policy in education makes sure that everyone in higher education, from teachers to guidance counsellors, is aware of the gender-identity problem and that it is a part of the curriculum and everything else.

1.4 Socio-Economically Disadvantaged Groups (SEDGs)

Certain groups are significantly underrepresented in the current educational systems, as acknowledged by the NEP 2020. In order to effectively target the educational requirements of specific groups, the NEP has consolidated socio-economic conditions, gender identities, socio-cultural identities, and geographical identities into a new social group known as the SEDGs. The policy's primary goals are centred on fostering inclusivity with regard to these groups. As previously indicated, the elevated rates of attrition among these groups can be attributed to an array of factors, including historical marginalisation of communities from educational systems on the basis of sociocultural identities and inadequate accessibility for the tribal communities (geographic). In order to foster greater representation, the NEP 2020 proposes a range of policies and schemes that acknowledge the unique requirements of these groups. These include the provision of bicycles for transport purposes, conditional cash transfers to encourage parents to enrol their children in school, and targeted scholarships that have proven effective in the past in boosting enrollment.

1.5 Recognition of individuals with special needs

Advocating for their integration into regular educational systems, the policy acknowledges the existence of children with special needs. In general, it corresponds to the goals outlined in the Rights of Persons with Disabilities Act of 2016. In addition, the policy seeks to staff all school complexes with special educators in an effort to promote inclusive education that is sensitive to the needs of students. Home schooling will be an option for children with criterion disabilities, who will be accompanied by qualified home schooling educators to ensure they continue to receive the highest quality of education and facilities. Moreover, educators will receive specialised training to promptly recognise learning disabilities in young children and to assist them in achieving academic success while also attending to their mental well-being. The establishment of the National Assessment Centre, PARAKH, is intended to establish testimonies that are fair and impartial for children who have cognitive disabilities. Alternative educational models are suggested in order to further this aim.

1.6 Limitations on addressing gender disparities in education

Implementation Challenges: Notwithstanding the fact that the NEP 2020 delineates significant provisions aimed at advancing gender equality, the effective execution of these initiatives might

encounter obstacles. At the local level, insufficient infrastructure, resources, and capacity may impede the successful implementation of the policy's goals.

Monitoring and Accountability: A comprehensive framework for monitoring and accountability would be advantageous for the NEP 2020 in order to guarantee the successful attainment of gender equality objectives. In the absence of effective progress monitoring systems, there is a potential for the policy's goals to remain un realised or to receive insufficient attention.

Intersectionality and Marginalized Groups: An additional avenue for enhancing the NEP 2020's methodology would be to address the intersectionality of gender with regard to social classes, including but not limited to caste, ethnicity, disability, as well as socioeconomic standing. By considering the unique requirements and obstacles encountered by marginalised communities, the policy's capacity to comprehensively tackle gender disparities would be significantly augmented.

1.7 Potential Impacts

Improved Gender Parity: By addressing systemic obstacles and prejudices, the NEP 2020 may be able to facilitate greater gender equality in education. The implementation of support systems and equitable opportunities can potentially facilitate greater enrollment, retention, as well as educational achievement among female students.

Challenging Gender Stereotypes: NEP 2020 advocates for an inclusive educational environment and a gender-sensitive curriculum, both of which possess the capacity to confront and dismantle conventional gender stereotypes. By cultivating a more equitable learning environment, this can empower students to cultivate their capacity for critical analysis and to denounce discriminatory behaviours.

Empowering Women in Education: By emphasising the empowerment of women in educational leadership positions, the policy can assist in the formation of mentors and role models for students. Enhancing the presence of women in positions of authority can serve as a source of motivation and empowerment for forthcoming cohorts, thereby advancing gender parity beyond the realm of education.

1.8 NEP 2020's Alignment with International Frameworks and Practices for Promoting Gender Equality in Education

An imperative component in evaluating the efficacy and potential ramifications of National Education Policy (NEP) 2020 is its conformity with global frameworks and exemplary approaches that advance gender parity in education. The NEP 2020's conformity with international frameworks as well as best practices is assessed as follows:

- 1. Sustainable Development Goals (SDGs):** The NEP 2020 is in accordance with SDG 4, which prioritises the provision of quality education that is inclusive and equitable for all. The policy's emphasis on gender-sensitive curriculum, inclusive education, and closing the achievement gap between the sexes in education aligns with the Sustainable Development Goals (SDGs), specifically Goal 4.5, which seeks to eradicate gender anomalies in the field of education.

2. **Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW):** The provisions of the NEP 2020 are consistent with the principles of CEDAW, which aim to eradicate gender-based discrimination in the field of education. The policy demonstrates its commitment to CEDAW's objectives and suggestions through its efforts to advance gender equality, combat gender-based violence, as well as empower women in leadership positions within the education sector.
3. **UNESCO's Gender Equality in Education Framework:** The NEP 2020 is in accordance with the Gender Equality within Education Framework established by UNESCO. This framework emphasises the criticality of implementing curriculum reform, data collection, gender-sensitive policies, and teacher training in order to rectify gender inequalities in the field of education. In accordance with UNESCO's framework, the policy prioritises gender-sensitive curricula, inclusive education, as well as data-driven decision making.
4. **Best Practices from Other Countries:** In order to advance gender equality in education, the NEP 2020 incorporates lessons learned from global best practices. The aforementioned components—namely, secure and all-encompassing academic settings, curricula that account for gender considerations, and the promotion of women in leadership roles within the field of education—have demonstrated favourable results in nations that have effectively executed comparable approaches.

2 Literature Review

(Chaudhary, 2020) Empowerment of Women refers to the process of enhancing the social standing of women by means of education, awareness-raising, literacy, and training. Empowerment also entails providing individuals with the means to make critical life choices and granting them authority in societal domains where they previously lacked it. Although policies exist regarding the empowerment of women, substantial disparities exist between policy progress and "actual" implementation at community level. Crimes against women in India are prevalent, including but not limited to dowry-related offences, molestation, sexual harassment, and eve-teasing. As of 2019, the crime rate against women stands at 62.4%.

(Raquel Fernández, Asel Isakova, Francesco Luna, 2021) In addition to examining the origins and facets of gender inequality, this article proposes policies and optimal approaches to mitigate its effects. In light of the fact that 50% of the world's population consists of women, inclusive development is contingent upon the promotion of gender equality. Gender disparities continue to exist throughout all ages, including prenatal development, and have adverse effects on the health, education, as well as economic prospects of women, notwithstanding recent advancements. In order to achieve gender equality, it is imperative to implement legal framework reforms, foster policies that facilitate equal access, and confront deeply ingrained social norms. These must be situated within the framework of emerging trends and disruptions, including climate change and digitalization, as well as pandemics.

(Chandrasekarayya & Kumari, 2021) In addition to providing education facilities, individuals are

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expected to abstain from any form of discrimination predicated on gender or sex. Regrettably, gender-based discrimination continues to persist in numerous regions of our nation. As with males, it is essential to convince the public that female education constitutes a fundamental privilege, given the critical role that women play in the progress of a nation. It is imperative that all nations, including developing and underdeveloped ones, take action to enhance the state of female education. Consequently, women Education is a comprehensive expression that encompasses the health status and educational attainment of all girls and women up to the tertiary level. The purpose of this descriptive paper is to analyse the level of emphasis placed on gender-related aspects in the New Education Policy 2020, using secondary data.

(Chouhan & Gupta, 2021) In addition to providing education facilities, individuals are expected to abstain from any form of discrimination predicated on gender or sex. Regrettably, gender-based discrimination continues to persist in numerous regions of our nation. As with males, it is essential to convince the public that female education constitutes a fundamental privilege, given the critical role that women play in the progress of a nation. It is imperative that all nations, including developing and underdeveloped ones, take action to enhance the state of female education. Consequently, women Education, which encompasses the vocational training and health services available to all girls and women, extends to the tertiary level. The purpose of this descriptive paper is to analyse the level of emphasis placed on gender-related aspects in the New Education Policy 2020, using secondary data.

(Nahar, 2022) Based on data from the 2011 census, 48.5% of the total population of India consists of females. In today's culture of swift change, the empowerment of women is crucial. An education that positively influences women's self-esteem has the capacity to enhance their social stature and self-confidence. Education enhances one's self-assurance and facilitates the capacity to make more informed decisions. Society cannot achieve its objectives of family well-being, education, and economic prosperity without empowering its female members. Literacy and education empower women to exert more control over their lives.

(Ata, 2023) Officially passed by the Union Cabinet of India on July 29, 2020, the National Education Policy 2020 (NEP 2020) describes the goals for India's new school system. 1986's National Policy on Education is superseded by the new policy. The policy serves as an all-encompassing structure governing primary education, higher education, vocational training, and rural and urban areas in India. By 2040, the policy intends to have completely transformed India's education system.

(Mathew, 2023) India has entered a paradigm shift in educational reform with the implementation of the National Education Policy of 2020. The NEP holds great potential for promoting equitable and inclusive opportunities for high-quality education. In this critical analysis, we shall scrutinise the potential ramifications of the policy on transgender education, exploring whether it constitutes a revolutionary approach or a fruitless venture. Significant laws as well as issues can be dissected in order to unveil the complex web of barriers that transgender community encounters when endeavouring to advance their education.

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(Nayak, 2023) Education is the preeminent prerequisite for individuals to broaden their intellectual perspectives and transcend a state of ignorance. Both men and women play a crucial role in the establishment of a healthy, equitable, and just society, which makes it vital for both to be involved. As guaranteed by the Constitution of India, education is fundamental entitlement that transcends caste, class, and gender affiliations. The education of women is equally as vital as that of males. The participation of women in the developmental process of a nation is significant. NEP 2020 is the preeminent education policy of the twenty-first century and focuses on directing India's numerous developmental requirements. Presently appears to be a critical moment to assess the extent to which India's New Education Policy addresses gender disparities in education across all levels. Secondary sources serve as the fundamental foundation for this descriptive analysis.

(Mandal, 2023) The National Education Policy 2020 is an all-encompassing structure designed to bring about a paradigm shift within the Indian education system. A primary aim of the organisation is to advance gender parity and the empowerment of women in the field of education. This research article undertakes a critical analysis of the provisions and execution of the NEP 2020 with respect to the aforementioned objectives. An analysis of the policy's effect on mitigating gender disparities in educational access, retention rates, and educational outcomes is conducted in this study. Furthermore, it delves into the manner in which the NEP combats gender stereotypes and fosters an empowering and all-encompassing educational milieu that transcends gender distinctions. The analysis examines the efficacy of various initiatives implemented in educational institutions, including curriculum reforms, teacher training, as well as the establishment of secure and inclusive environments.

(Jameela.T, 2023) This research investigates the complex correlation that exists between the National Education Policy 2020 of India and the liberties of women. The text offers a historical framework that underscores the incremental advancements towards women's rights in India. Additionally, it confronts enduring obstacles such as gender-based violence, inequitable wages, and educational discrepancies. The potential transformative impact of NEP 2020 is assessed due to its emphasis on gender-inclusive education, female teacher empowerment, holistic curriculum development, and gender sensitization. Nonetheless, obstacles such as socioeconomic disparities and inequalities in implementation are recognised.

(Jana & Halder, 2023) Inclusive education is currently considered an imperative rather than a luxury. The new educational philosophy called inclusive education places significant emphasis on the provision of education for all children, including those without disabilities, within a single facility. The National Educational Policy (NEP), 2020, a recent endeavour, seeks to mitigate the escalating disparities and inequities that presently afflict the educational system of the nation.

(Pokharel, 2024) In the context of Nepal, this article investigates the connection between gender equality as well as the Sustainable Development Goals (SDGs). The objective of this paper is to provide insight into the complex obstacles that Nepalese society encounters when attempting to concurrently attain gender parity as well as sustainable development. The report commences by presenting an all-encompassing synopsis of the current state of gender equality within Nepal, scrutinising pivotal metrics

including political engagement, employment, healthcare, and education. The study proceeds to examine the interconnection between gender issues and the SDGs, scrutinising the manner in which the attainment of gender equality aids in the realisation of more extensive development goals.

(Dr. Seema Ghanghas, Dr. Waseem Ahmad Khan, 2024) Societal disparities between males and women have endured for centuries. Despite the implementation of numerous initiatives, the encouragement of gender exclusivity in school textbooks and curricula remains a critical factor in promoting gender equality and dismantling prevailing gender norms. Each facet of our education—textbooks, illustrations, narratives, and instances—contributes to the development of gender stereotypes in children. By comparing Indian educational institutions using a synopsis of the New Policy 2020, we were able to find the problems with our system and conclude that we still have a ways to go before we achieve SDGs 4 and 5.

(Kanungo, 2024) This article takes a close look at India's NEP 2020 and how it may help the country reach SDG 4, which is all about quality education. The text delineates the obstacles pertaining to access, equity, and memorization of knowledge within the historical backdrop of India's education system. The expanding labour market of the twenty-first century and the necessity to adequately prepare graduates for this market underscore the pressing nature of reform. Next, the article delves into the parts of NEP 2020 that are in line with the five goals of SDG 4: fairness, universal access, basic reading and numeracy, competency-based education, and chances for lifelong learning. An analysis is conducted of the policy's prioritisation of vocational training, problem-solving, and critical thinking within the framework of advancing sustainable economic growth and respectable work (SDG 8) as well as gender equality (SDG 5). Despite this, the paper acknowledges that effective implementation will face significant obstacles. Challenges include limitations in resources, the need for adequate teacher training, and the promotion of equitable access in marginalised communities.

3 Conclusion

The paper presented offers a comprehensive analysis of the National Education Policy (NEP) 2020 in relation to gender parity and empowerment. It provides insightful perspectives, acknowledges the policy's limitations, and assesses its potential implications. The results of the paper provide insights into multiple facets of the NEP 2020 and suggest ways to improve its efficacy in tackling gender inequalities in the field of education.

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