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(ICSSR) NEW DELHI

SRDA GIRLS (PG) COLLEGE, HATHRAS

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SRDA GIRLS (PG) COLLEGE, HATHRAS

Preface

India is called the country of youth and it is a youth-power which has the ability to bring any country from floor to sky. In the present time, the Government is trying to make India a Vishwguru again and this is possible only when our youth is capable, confident and skilled and the role of education is most important in the creation of such youth. Our New Education Policy 2020 aims to transform India into a Vibrant Knowledge Society and Global Knowledge Superpower by making education a more holistic, flexible & multidisciplinary suited to 21st century needs and aimed at bringing out the unique capabilities of each student.

National Education Policy 2020 has given us a tool to provide high-quality education to our youth according to their talents and choices.

This research journal comprises 13 articles presented at the **ICSSR sponsored seminar titled "NEP-2020: A Guiding Lamp for Making India World Leader," held at SRDA Girls (PG) College, Hathras on March 25-26, 2023.** These articles focus on holistic, multidisciplinary, and flexible education, skill development for a self-reliant India, inclusive and equitable education, and the digitalization of education & provide thorough understanding of the provisions & approaches for the effective implementation of policy.

This journal will serve as a platform for faculty members, academicians, and researchers to gain ideas and insights for the effective implementation of policy and will contribute to fulfilling the vision and mission of the policy.

1- Dr. Sarvesh Kumari's paper highlights the importance of adopting a holistic and multidisciplinary approach to education, as outlined in the National Education Policy (NEP) 2020. This approach aims to cultivate well-rounded individuals equipped with diverse skills and knowledge to meet the demands of the 21st century and drive India's progress towards becoming a global knowledge powerhouse.

2- Dr S.F. Usmani & Ms Bharti Sharma's paper emphasizes the importance of multilingualism in education, discussing its cognitive benefits, challenges, and implementation strategies outlined in the National Education Policy 2020. It highlights the cognitive advantages of multilingualism, the need for well-

trained teachers, and the necessity for policy support to foster linguistic diversity in educational settings.

3- Dr. Babita Agarwal's paper discusses the importance of quality education and professional development for teachers, highlighting factors affecting quality education and the adoption of new technologies to enhance learning outcomes. It also provides an overview of the National Education Policy 2020, focusing on its key highlights and provisions aimed at improving education quality and accessibility in India.

4- Mr Harshit B. Nair's paper examines the significance of integrating India's National Education Policy (NEP) 2020 into pre-service teacher education, highlighting its potential to enhance teaching practices, promote holistic development, and address challenges in the education system. The paper underscores the alignment of NEP 2020 with pre-service teacher education objectives, emphasizing the need for continuous professional development and innovative pedagogical approaches to realize the policy's vision of quality education for all.

5- The paper by Ms Manu Goswami & Dr. Asha Yadav discusses the transformative impact of the National Education Policy (NEP) 2020 on the Indian education system, emphasizing its focus on career development for students. It highlights key aspects such as online education, integrated learning, skill development, international collaboration, and challenges in implementation, while envisioning a comprehensive and adaptive approach to education that prioritizes students' personal growth and prepares them for diverse career paths.

6- The paper of Ms Priyanka Joshi & Dr Rajesh Singh Chauhan emphasizes the importance of skill development in the modern world, highlighting its role in economic growth, job creation, and individual empowerment. It discusses initiatives like the National Skill Development Mission and Pradhan Mantri Kaushal Vikas Yojana in India, emphasizing the need for collaboration between the government, private sector, and educational institutions to achieve self-reliance and sustainable development.

7- The paper by Ms Eti Goswami & Prof. Sunita Gupta highlights the importance of bridging the gender gap in STEM fields for sustainable development in India. It discusses the challenges faced by women in STEM, presents various government initiatives to promote their participation, and provides

recommendations such as promoting inclusivity, featuring female role models, implementing STEM programs early, offering scholarships, fostering industry collaboration, and engaging parents to encourage girls' participation in STEM careers.

8- Dr. Remmiya Rajan's paper highlights the critical importance of inclusive and equitable education policies in promoting social justice and fostering individual growth. By addressing systemic barriers and providing equal opportunities for all students, these policies aim to create a supportive environment where every learner can thrive, ultimately contributing to a more just and harmonious society.

9- Mr Devdeep Sikdar's paper comprehensively analyzes the Indian Knowledge System (IKS), focusing on its integration into education, research, and societal applications. It outlines the objectives, functions, and initiatives of the IKS division under the Ministry of Education, emphasizing the promotion of interdisciplinary research, preservation, and dissemination of traditional knowledge, and fostering collaborations to address modern societal challenges.

10- The paper by Dr Vinay Verma discusses India's digital education initiatives such as DIKSHA, SWAYAM, and SWAYAM PRABHA, highlighting their role in ensuring access to quality education during the Covid-19 pandemic. It also addresses various other initiatives and recommendations, including FOSSEE, Virtual Lab, Shodhganga, E-Shodhsindhu, and the National Education Policy 2020, emphasizing the need to leverage technology, bridge the digital divide, provide teacher training, and implement blended learning models to enhance educational outcomes and create a just and equitable society.

11- Ms Sakshi Singh Raghav & Dr Rajesh Kumar Chauhan's paper discusses the rapid digitalization of education in India, highlighting the shift towards online learning platforms, the challenges faced, and the potential solutions digital education offers. It emphasizes the importance of digital empowerment in addressing various educational issues and aligning with the goals of NEP-2020 to enhance learning opportunities through technology integration.

12- Ms Zoya Afaq's paper discusses the transformative role of digital education in India, emphasizing initiatives like PM e-Vidya and DIKSHA to ensure inclusive and quality education through digital platforms. It highlights the

importance of National Education Policy 2020 in leveraging technology to address educational disparities and promote life-long learning, while acknowledging challenges in implementation and the need for addressing social and economic inequalities for improving quality of life.

13- Mr Durgesh Sambharkar & Ms Nitika's paper discusses the economic benefits and implications of digital empowerment in education, emphasizing cost-effectiveness, human capital development, and bridging socioeconomic gaps. It explores the impact of digitalization on learning, challenges in implementation, and policy recommendations for enhancing digital education in India, underscoring the significance of the National Education Policy of 2020 in fostering equitable and accessible education through technology integration.

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NEP 2020 : Roadmap for Multidisciplinary, Holistic and Flexible Education

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Abstract

The National Education Policy (NEP) 2020 is an ambitious policy document aiming to revolutionize the education system in India. One of the key aspects of the policy is the emphasis on a Holistic Multidisciplinary and Flexible approach in education. As highlighted in the NEP–2020 document, there should be a paradigm shift from single discipline or stand-alone institutions to multidisciplinary institutions. NEP-2020 recommends, ***"Large multidisciplinary universities and colleges will facilitate the move towards high-quality holistic and multidisciplinary education"****. Imaginative and flexible curricular structures will enable creative combinations of disciplines for study, and would offer multiple entry and exit points, thus removing currently prevalent rigid boundaries and creating new possibilities for life-long learning. Graduate-level, master's and doctoral education in large multidisciplinary universities, while providing rigorous research-based specialization, would also provide opportunities for multidisciplinary work, including in academia, government, and industry. This paper enlightens the roadmap of NEP 2020 for embraces the holistic and multidisciplinary approach and seeks to strengthen it at all levels.*

Key words

NEP 2020, Holistic, Multidisciplinary, Flexible, Universities, Specialization.

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Dr. Sarvesh Kumari

NEP 2020 : Roadmap for Multidisciplinary, Holistic and Flexible Education

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Dr. Sarvesh Kumari

Introduction

India has a long tradition of holistic and multidisciplinary learning, from universities such as Takshashila and Nalanda, to the extensive literatures of India combining subjects across fields. Ancient Indian literary works such as Banabhatta's Kadambari described a good education as knowledge of the 64 Kalaas or arts; and among these 64 'arts' were not only subjects, such as singing and painting, but also 'scientific' fields, such as chemistry and mathematics, 'vocational' fields such as carpentry and clothes-making, 'professional 'fields, such as medicine and engineering, as well as 'soft skills' such as communication, discussion, and debate. The very idea that all branches of creative human endeavour, including mathematics, science, vocational subjects, professional subjects, and soft skills should be considered 'arts', has distinctly Indian origins. This notion of a 'knowledge of many arts' or what in modern times is often called the 'liberal arts' must be brought back to Indian education, as it is exactly the kind of education that will be required for the 21st century.

Multidisciplinary Approach in Education

Multidisciplinary education is a form of educational strategy that brings together multiple disciplines to create a holistic learning experience. It is designed to foster an understanding of the interconnectedness of various fields and how they can be integrated for better problem-solving. Multidisciplinary education, if implemented in schools and colleges, allows students to gain a deeper understanding of the subject matter through the lens of different disciplines. This approach encourages creative thinking, critical analysis, collaboration, and communication skills.A holistic and multidisciplinary education, as described so beautifully in India 's past, is indeed what is needed for the education of India to lead the country into the 21st century and the fourth industrial revolution. Even engineering institutions, such as IITs, will move towards more holistic and multidisciplinary education with more arts and humanities. Students of arts and humanities will aim to learn more science and all will make an effort to incorporate more vocational subjects and soft skills. Assessments of educational approaches in undergraduate education that integrate the humanities and arts with Science, Technology, Engineering and Mathematics have consistently showed positive learning outcomes, including increased creativity and innovation, critical thinking and higher-order thinking capacities, problem-solving abilities, teamwork, communication skills, more in depth learning and mastery of curricula across fields, increases in social and moral awareness, etc., besides general engagement and enjoyment of learning. Research is also improved and enhanced through a

holistic and multidisciplinary education approach. Multidisciplinary education is a vital part of India's modern education system. By embracing this concept, the NEP 2020 seeks to give students access to a wider knowledge base and skills and prepare them for a rapidly changing world.

Holistic Approach in Education

In the post-Independence era, National Education Policies of 1968 and 1986 took some steps towards holistic learning such as identification of talent in diverse fields, participation in meaningful and challenging programs of community service and national reconstruction, high priority to research, training of youth for self-development, vocational education, youth development, computer education and so on. Despite having many provisions for strengthening education system these policies did not talk about multidisciplinary education at all. A holistic and multidisciplinary education would aim to develop all capacities of human beings -intellectual, aesthetic, social, physical, emotional, and moral in an integrated manner. Such an education will help to develop well-rounded individuals that possess critical 21st century capacities in fields across the arts, humanities, languages, sciences, social sciences, and professional, technical, and vocational fields; an ethic of social engagement; soft skills, such as communication, discussion and debate; and rigorous specialization in a chosen field or fields. Such a holistic education shall be, in the long term, the approach of all undergraduate programmes, including those in professional, technical, and vocational disciplines.

Empower Students through Flexibility in Course Choices

Large multidisciplinary universities and colleges will facilitate the move towards high-quality holistic and multidisciplinary education. Flexibility in curriculum and novel and engaging course options will be on offer to students, in addition to rigorous specialization in a subject or subjects. This will be encouraged by increased faculty and institutional autonomy in setting curricula. Pedagogy will have an increased emphasis on communication, discussion, debate, research, and opportunities for cross-disciplinary and interdisciplinary thinking.

Departments in Languages, Literature, Music, Philosophy, Indology, Art, Dance, Theatre, Education, Mathematics, Statistics, Pure and Applied Sciences, Sociology, Economics, Sports, Translation and Interpretation, and other such subjects needed for a multidisciplinary, stimulating Indian education and environment will be established and strengthened at all HEIs. Credits will be given in all Bachelor's Degree programmes for these subjects if they are done from such departments or through ODL mode when they are not offered in-class at the HEI. Development of

humanistic, ethical, Constitutional, and universal human values of truth , righteous conduct, peace, love, nonviolence, scientific temper, citizenship values, and also life-skills; lessons in seva/service and participation in community service programmes will be considered an integral part of a holistic education. As the world is becoming increasingly. As part of a holistic education, students at all HEIs will be provided with opportunities for internships with local industry, businesses, artists, crafts persons, etc., as well as research internships with faculty and researchers at their own or other HEIs/research institutions, so that students may actively engage with the practical side of their learning and, as a by-product, further improve their employability.

Degree Programmes in HEI

The structure and lengths of degree programmes shall be adjusted accordingly. The undergraduate degree will be of either 3 or 4-year duration, with multiple exit options within this period, with appropriate certifications, e.g., a certificate after completing 1 year in a discipline or field including vocational and professional areas, or a diploma after 2 years of study, or a Bachelor 's degree after a 3-year programme. The 4-year multidisciplinary Bachelor's programme, however, shall be the preferred option since it allows the opportunity to experience the full range of holistic and multidisciplinary education in addition to a focus on the chosen major and minors as per the choices of the student. An Academic Bank of Credit (ABC) shall be established which would digitally store the academic credits earned from various recognized HEIs so that the degrees from an HEI can be awarded taking into account credits earned. The 4-year programme may also lead to a degree 'with Research' if the student completes a rigorous research project in their major area of study as specified by the HEI.

Master's Programmes in HEI

Higher education institutions will have the flexibility to offer different designs of Master's programmes:

(a) There may be a 2-year programme with the second year devoted entirely to research for those who have completed the 3-year Bachelor's programme;

(b) For students completing a 4-year Bachelor's programme with Research, there could be a 1-year Master's programme; and

(c) There may be an integrated 5-year Bachelor's/Master's programme. Undertaking a Ph.D. shall require either a Master's degree or a 4-year Bachelor's degree with Research. The M.Phil. programme shall be discontinued.

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NEP 2020 and Quality Research

Knowledge creation and research are critical in growing and sustaining a large and vibrant economy, uplifting society, and continuously inspiring a nation to achieve even greater heights. Indeed, some of the most prosperous civilizations (such as India, Mesopotamia, Egypt, and Greece) to the modern era (such as the United States, Germany, Israel, South Korea, and Japan), were/are strong knowledge societies that attained intellectual and material wealth in large part through celebrated and fundamental contributions to new knowledge in the realm of science as well as art, language, and culture that enhanced and uplifted not only their own civilizations but others around HEIs will focus on research and innovation by setting up start-up incubation centres; technology development centres; centres in frontier areas of research; greater industry-academic linkages; and interdisciplinary research including humanities and social sciences research. Given the scenario of epidemics and pandemics, it is critical that HEIs take the lead to undertake research in areas of infectious diseases, epidemiology, virology, diagnostics, instrumentation, vaccinology and other relevant areas. HEIs will develop specific hand holding mechanisms and competitions for promoting innovation among student communities. The NRF will function to help enable and support such a vibrant research and innovation culture across HEIs, research labs, and other research organizations. Under the NEP 2020, the Government of India proposed to set up a National Research Foundation (NRF) to strengthen the research ecosystem in India. NRF aims to seed, grow, and facilitate research at academic institutes, particularly universities and colleges. The NRF will be governed, independently of the Government, by a rotating Board of Governors consisting of the best researchers and innovators across fields. NRF will provide a reliable base of merit-based but equitable peer-reviewed research funding, helping to develop a culture of research in the country. This is achieved through appropriate incentives for and recognition of outstanding research at universities and other public institutions where research capability is currently limited. The NRF will competitively fund research in all disciplines.

The Ecosystem for Research

NEP was a much-needed move for the transformation of the education ecosystem. The present globe is the realm of many complex and interrelated phenomena like climate change, biotechnology, digital marketing, Marketing-technology for humanity, industrial revolution, sustainable development, society, and many more. A robust ecosystem of research is perhaps more important than ever with the rapid changes occurring in the world today. Therefore, significant research capabilities and output expansion across disciplines are a must. Today,

research is more critical than ever for a nation's economic, societal, intellectual, environmental, and technological health and progress. At this juncture, India must try to achieve the potential of its vast talent pool to become a leading knowledge power society. The societal challenges that India need to address today, such as access for all its citizens too – clean drinking water and sanitation, quality education and healthcare, improved transportation and communication, quality of air, sustainable energy, and basic infrastructure.

All this will require implementing approaches and solutions not only informed by top-notch science and technology but also rooted in a deep understanding of the social sciences and humanities and the nation's various socio-cultural and environmental dimensions. It seeds to establish an educational landscape that caters to the overall development of students to create an industry-ready workforce to meet global industry requirements and emphasize entrepreneurship and a startup ecosystem.

NEP 2020 and Innovation

Innovation refers to the development of any new idea, phenomenon, or practice. HEIs are the natural incubators at the heart of innovation, creativity, and economic growth. Entrepreneurial universities contribute and provide leadership for creating entrepreneurial thinking, actions, and entrepreneurship capital. They are mandated to facilitate the commercialization of university research and generate startups and new ventures. But in India, the status is unsatisfactory, and much of the research work is not outcome-based.

To boost research, student exchange, excellence, and innovation, Shri Dharmendra Pradhan, Minister of Education, advocates for more autonomy for colleges by UGC to facilitate research, and student exchange and promote excellence and innovation. He encourages the students to contribute to India's transformation into a knowledge society. He also emphasizes the importance of India's ancient knowledge systems. He urges all to take pride in our roots and highlights NEP's focus on promoting Indian ethos, decolonizing our education system, and transforming our students into global citizens.

Strategies for Ensuring Equity and Access to All

Among the larger section of the student population who have no access to higher education includes women, economically weaker section, tribal students, rural students and students with distinctly diversified. No doubt, our central and state governments have made great provisions; however, especially for Socially and Economically Deprived Groups (SEDGS) students aspiring for higher education

and international education, more scholarships should be introduced for which there is an urgent need to review and restructure the schemes both at the central as well as the state level.

Strategies For Promoting Indian Languages

India is a multi-linguistic and multi-religious country. Thousands of years of Indian culture is seen both in materialistic and non materialistic forms, such as traditions, customs, literature, arts and so on. One of our objectives of education is to transmit our Indian literature and culture for the benefit of the individuals and also the society. There are more than 220 languages in the country. UNESCO has declared that 197 Indian languages are under 'endangerment'.

Hence, there is a need to come out with an action plan. The suggested ones are:

- Establishment of All India Pradhikar for Translation (AIPT) of useful ancient work of great scholars from Indian Languages.
- Language policy for higher educational institutions, to encourage the nurturing of Indian languages.
- Developing language related apps using Artificial Intelligence (AI) for self translation to understand the literature of the other languages.

Student Activity and Participation

Students are the prime stakeholders in the education system. Vibrant campus life is essential for high-quality teaching-learning processes. Towards this end, students will be given plenty of opportunities for participation in sports, culture/arts clubs, eco-clubs, activity clubs, community service projects, etc. In every education institution, there shall be counselling systems for handling stress and emotional adjustments. Furthermore, a systematized arrangement shall be created to provide the requisite support to students from rural backgrounds, including increasing hostel facilities as needed. All HEIs will ensure quality medical facilities for all students in their institutions.

Conclusion

The NEP 2020 promotes a participatory, holistic, and multidisciplinary approach to education. Its progressive march is a shift to a more scientific approach to higher education. In a nutshell, the NEP 2020 aims to usher and produce prolific, productive, and contributing young minds to build an inclusive, equitable, and self-reliant nation. Indeed, the NEP 2020 will provide a novel path to the entire education system to make India a global knowledge-power and economic giant. Over the next decade, India will have the highest young population in the world, with more than

50 percent of the population below the age of 35 aspiring for high-quality education. So, there is a need to enable them to acquire new knowledge and skills to learn how to learn. The Global Education Development Agenda reflected in Goal 4 (SDG4) of the 2030 Agenda for Sustainable Development, adopted by India in 2015 – seeks to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all by 2030. .Multidisciplinary education is a concept that has been embraced by the Indian government through the new National Education Policy (NEP) 2020. This approach to learning looks at how different disciplines can interact and overlap with each other to create a comprehensive understanding of a subject. A multidisciplinary approach in education is often seen as the ideal way to tackle complex problems and will be essential for India's continued success in the global economy. With the NEP 2020, India is well positioned to build on its current educational system and move towards a more holistic and multidisciplinary approach. This is undoubtedly a historic movement for all the students, teachers, society, parents, and stakeholders. It is intriguing to see how the norms of this policy will be implemented, but we can be sure that this is a new age in the Indian education landscape.

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Multilingualism is the Superpower for New Generation

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Abstract

We live in a multilingual world.The need for a language policy worldwide which provides people with the languages and the language skills that they need both at home and in future global destinations. Education should provide a varied language repertoire and an understanding of which languages we should learn for what purpose.The role of compulsory education is critical and we need a language education policy which both respects mother tongue heritage and also prepares new generation for a globalized world with English as a lingua franca. The NEP 2020 ardently promotes multilingualism and the influence of local languages. According to NEP 2020, new gen learners have a much better chance to grasp ideas in native language medium of teaching till Grade V, and if possible, Grade VIII should be in native languages. The notion that a learner can attain fundamental skills better in their mother tongue is generally accepted across the world. And it is clear that more research is needed to discover how to accelerate the development of high-level language proficiency in new gen people. In this paper we look at the concept and contexts of multilingualism, how this impacts education and language learning, Amalgamation benefits of multilingualism practices in education and how its implementation is helpful in education.

Keywords

Language, Multilingualism, Native Language, Amalgamation, Lingua Franca.

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Multilingualism is the Superpower for New Generation

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"Language is a speech sound produced by human beings to express their ideas, emotions, thoughts, desires, and feelings." –Aristotle

Introduction

Language as a medium of communication amongst humans possesses numerous attributes such as being governed by rules, is a system and performs such functions as giving information, expressing feelings and emotions, establishing rapport, exercising authority and an identity marker. People need language to communicate with others. As per (Jendra, 2010, p. 1) language is used only by humans for communication. It means that mostly humans cannot communicate with another without language. Language is a system of conventional, spoken, or written symbols utilizing which human beings are used to communicate.

"Indian language changes every few kilometers just like the water" is true when referring to the country's language. Every region of India has a different culture, making it a diversified nation. Each of the 28 states and 8 Union Territories that make up this union represents its own unique cultural heritage and dialect. There are 22 scheduled languages in all, and they are all extensively spoken in various states. In accordance with Article 343, the Central Government shall communicate with the Hindi States in Hindi. When communicating with the states, English is to be utilized as an associate official language as lingua Franca **A lingua franca is a language that is adopted as the common language used between speakers whose native languages are not the same.** Hindi and English are therefore the official languages of India, not the national languages, as stated in the Constitution. India, behind Papua New Guinea (840), has the second-highest number of languages, according to the People's Linguistic Survey of India (780). Ethnologue gives a lower figure of 456, however. The 2011 Census of India identified 270 mother tongues with 10,000 or more speakers each. Included in them are "123 mother tongues grouped under the Scheduled Languages and 147 mother tongues grouped under the Non-Scheduled Languages." The unscheduled languages include Bhili (10 million speakers) and Gangte (16,000 speakers). If a person speaks one language regarded as Monolingual, Bilingual means can speak two languages and multilingual means has a power to speak more than two languages. The experience of speaking more than one language has been shown to provide bilingual and multilingual individuals with enhanced linguistic capabilities (Bialystok, 2008); (Cenoz, 2013). These linguistic capabilities are subsequently associated with greater advantages in executive brain functions (Marian & Spivey, 2003). The world has always been multilingual, and the ways that we develop language learning and teaching success must take the multilingual realities of the world into account. Multilingualism has

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always been the default context for human beings. Children in most parts of the world grow up with two or more languages available to them, and increasingly young people in their studies and work move to locations where other languages than their mother tongue are the norm, and they must learn to be bilingual or multilingual.

A substantial part of NEP 2020 is a celebration of the **Ek Bharat Shreshtha Bharat**, One India, supreme India, program and the Sanskrit language. Every student of the country is to participate in this meta-narrative of 'glorious India'. The remarkable unity of the country is also noticed in 'most of the major Indian languages, their common phonetic and scientifically arranged alphabets and scripts, their common grammatical structures, their origins and sources of vocabulary from Sanskrit and other classical languages .

One important part of the National Educational Policy 2020 focuses on 'Multilingualism and the power of language' in (sections 4.11- 4.22). The policy celebrates the status quo with some rhetoric added. It is substantially a repetition of the NEPs of 1968 and 1986, revised 1992, so far as the issues of mother tongue, three-language formula, regional languages, and such languages of power as Hindi and English are concerned. As Papia Sengupta (2021, EPW, 543, pp. 45-52) has argued, because of its definitional problems, the languages of minorities and those of the Northeast, in particular, are completely marginalized; it should therefore come as no surprise that the dropout rate in these regions is the highest at the primary and secondary levels. We need to work on a theoretically grounded pedagogy that treats the languages of learners as a resource and uses them as a platform for acquiring methods of scientific enquiry; we also need to ensure high levels of proficiency in the languages of extant knowledge in a way that learners are encouraged to not only translate that knowledge into their own languages but also bring to light knowledge systems encoded in their own languages and enrich others with refreshing creativity.

There is in fact little evidence to support the monolingual principle as the most effective way to learn additional languages. Research has demonstrated that bilinguals do not separate their different languages in their brain (Hoshino & and Thierry, 2011; Kharkhurin & Li, 2015; Lewis, Jones & Baker, 2012), or de-activate one language while using the other (Garcia, 2009; Schmitt, 2008; Shin, 2018). For so long seen as an inferior form of language practice, code switching, defined here as 'the alternate use of two languages, that is, the speaker makes a complete shift to another language for a word, phrase, or sentence and then reverts back to the base language'.The ability to shuttle between languages has become more and more important when navigating the increasingly complex linguistic spaces of the modern

world (Blackledge and Creese, 2018; Horner & Weber, 2018; Kramsch, 2014) where bi- and multilingual practices have intensified in many social, professional and educational interactions . Multilingualism is like a superpower! However , there is enough evidence that globally multilingualism is the norm and monolingualism the exception (Chumbow,2009).

Historical Development of Language

Language and nation 'Has a people anything dearer than the speech of its fathers? In its speech reside its whole thought-domain, its tradition, history, religion and basis of life, all its heart and soul.… The best culture of a people cannot be expressed through a foreign language; it thrives on the soil of a nation most beautifully and may I say, it thrives only by means of the nation's inherited and inheritable dialect. With language is created the heart of a people.' (Von Herder 1784).The evolution of languages or history of language includes the evolution, divergence and development of languages throughout time, as reconstructed based on different linguistic techniques**. Every human language has a vocabulary of tens of thousands of words, built up from several dozen speech sounds. Speakers can build an unlimited number of phrases and sentences out of words plus a smallish collection of prefixes and suffixes, and the meanings of sentences are built from the meanings of the individual words. There is evidence for multilingualism in ancient Greek, Egyptian and Roman times, including** languages such as Hebrew, Aramaic, Egyptian, Lycian, Greek and Latin. The emblematic Rosetta stone itself is evidence for this. In the Eastern Roman empire, laws and official documents were regularly translated into Greek from Latin. Latin–Greek bilingualism was characteristic of the Roman and Greek intellectual elites and both languages were in active use by government officials and the Church during the 5th century. In India, China, Africa and the pre-conquest empires of America – multilingualism was the norm and in many cases continues to be so to this day. Although in the past dominant languages and linguae francae developed (Quechua, Nahuatl, Urdu, Hindi, Swahili and classical Chinese) this was not generally to the detriment of other languages and dialects. In the 21st century, official multilingualism – both India and South Africa being striking examples – is relatively non-controversial in much of the world. Most observers now agree that English has effectively become the global language and that its role is unprecedented in world history. There is of course debate about why this has happened and about the extent to which this is or will be to the detriment of other languages (Philippson 2004, De Swaan 2004, English was the language that all pupils have to learn' (Eurydice 2008 p. 45). Worldwide it has been estimated that some 2 billion people – one-third of the human race – are

learning English. China and India are described by many observers as being in a competition to invest in the teaching and learning of English (LoBianco, Orton & Gao 2009; Graddol 2006, 2010)

Implementation of Multilingualism in India

Multilingualism in education refers to the practice of using multiple languages as a medium of instruction and communication in educational settings. National Education Policy 2020 discusses multilingual education at length. Multilingualism in education recognizes and respects the linguistic diversity of students and aims to provide them with an inclusive and effective learning environment. The foundational years of school are important for a child's intellectual development in the future. Children develop their cognitive capacities, verbal capabilities, and in-depth awareness of their environment at this vital stage. The NEP 2020 places a strong focus on using regional languages as a medium of education for several crucial reasons. India follows a three-language formula for its language policy. The three-language formula typically involves the study of three languages: the mother tongue or regional language, the official language of the state, and English. The goal is to strengthen the foundation of student's language skills and gradually introduce other languages as they progress. This can include immersion programs, dual-language programs, and content and language-integrated learning (CLIL) approaches. Effective implementation of multilingual education requires well-trained teachers who can teach in multiple languages and create a supportive learning environment for diverse students. Educational institutions often offer language courses and encourage the use of regional languages to maintain linguistic diversity and cultural heritage

Governments and educational authorities play a crucial role in developing policies that support multilingual education. This includes curriculum development, teacher training, and providing appropriate resources.

Challenges

Sometimes being a multilingual is disadvantageous. Many people learn many languages at the same time, but it seemed that most people have difficulties in having an excellent command of all the languages. Most people are better in one language and when they communicate, they express themselves in a similar way while using different languages. Sometimes, this would lead to misunderstandings and make people laugh at you. There are certain other challenges like, Conversations Difficulties with Families and friends when we reunite after long interval of time language became a barrier. Another challenge is Language Problem and High Cost

of learning challenge of multilingual education is language proficiency. Children face problem in pronunciation and grammar and it cost high to learn a new language and for that we need qualified teachers that we don't have it will again costly for teacher education departments. Acquisition of multiple languages can have negatively impact on student's academic performance, when English is not their first language. It may be difficult for them to concentrate on other subjects, and some teachers might suggest that they focus their attention elsewhere. So Multilinguisim is itself a challenge for education system.

Benefits of Amalgamation of Multilinguism in Education

Cognitive capacity improves by speaking several languages; Children who speak more than one language possess stronger cognitive abilities, and enabling them to succeed academically and financially. Those who speak multiple languages have an advantage over monolinguals in this area. These people are more demanding because of their familiarity with different cultures and languages, allows them to become effective communicators. Children and individuals who learn and speak multiple languages acquire an understanding of other cultures as well as an inherent acceptance of cultural diversity. They become more perceptive and aware of their surroundings as a result their memory power increases due to more exposure and they have less anxiety fear stress and health issues. The more fluent a person, the more languages he can learn. Opportunities for bilingual education promote brain development, increase focus among students, and lessen the time needed to switch tasks.

Conclusion

'Education is an integral part of the formative process to which all beings are subject and is only one aspect of that vast development. It is therefore not limited to the action of school and family but is part and parcel of general social life. Human society is an educational society.' (Piaget 1993)

To move from a vision to action will require an orientation and a strategy. We are moving towards a new kind of paradigm for languages. This is based on a Multilingual and asymmetric model where not all language competence needs to be the same, and where experience and learning out of school, whether on the street or Internet, will also contribute to the language profile of the individual. Intercultural understanding will also have a significant role. Looking at a better side multilingual individuals are in greater demand than monolingual, Multilingualism provides an opportunity to learn from differences rather than being afraid of them. Education about various cultures and races promotes diversity, giving individuals more power

and self-confidence in this paradigm English as the major vehicular language of communication has a key role to play. Language teaching and learning should no longer be compartmentalized into separate streams for language of schooling, 'foreign' languages and 'immigrant' languages. They are all part of a common core and require a collective understanding on the part of teachers. If 'all teachers are language teachers', it remains true that many are not trained to be so. Some understanding of the stages of language learning – for example the transference of conversational to academic language – needs to be part of all teachers' training and education then only it become a powerful tool for students.

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Motivated, Energized & Capable Faculty and Quality Education

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Abstract

When faculty members in any educational institutions are motivated, energized, and capable, they can enhance the learning of the student and support his personal development. They are responsible for shaping the careers of the students. To achieve the goals of education, the most important factor in the success of education institutions is the quality and engagement of its faculty. The factors in failure the goals behind low faculty motivation. It must be addressed to ensure that each faculty member is happy, enthusiastic, engaged, and motivated towards advancing her/his students, institution, and profession. There are several other factors by which one may improve the institution ranking and even motivated faculty members and other staff in educational institutions. The objectives of faculty development are to bring out an awareness among the faculty members about the global trends in education, adapt a new technology in the teaching-learning process, inculcate research skills and aptitude among faculty, developed student behaviour for improving the quality of teaching, transform a teacher into a competent facilitator. A well-groomed teacher can perform successfully and exceed the expectations of students as well as goal of institution and education. Faculty development is a must to acquaint the faculty to institutional practices, to orient them to student centricity, to enrich the content, and to explore the research avenues. Programme schedule should design based on the areas that require improvement and after finalizing the programme schedule, different experts should be invited to explore the things. All the programmes should also have a feedback mechanism to know whether they have met the expectations and delivered as per the defined programmed outcomes, wherein the participants describe course effectiveness; achievement of learning outcomes, and feedback for the improvement.

Keywords

Motivation, Learning outcomes, Feedback Mechanism, Faculty development.

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Dr. Babita Agarwal

Introduction

Education is a process of learning or teaching new skills or knowledge. Education is mostly provided in schools and universities. Education is very important for the development of the country. Education certainly determines the quality of an individual's life. Education improves one's knowledge, skills and develops the personality and attitude. Most noteworthy, Education affects the chances of employment for people. A highly educated individual is probably very likely to get a good job.

Education is the basic building block of every society. It is the single best investment countries can make to build prosperous, healthy and equitable societies. Educating children not only secures their personal life but collectively contributes to the development of a more reliable nation and the world. It can yield a better surrounding in which people can differentiate between right and wrong, know the importance of voting, adhere to laws, and reduce crimes.

Objectives

1. To discuss education and professional development of high quality to the teachers. To make availability to teachers and schools with the resources necessary to offer quality education.
2. Eventually enabling and empowering people, provides diverse knowledge, expertise, and skills, and helps develop essential skills in life. Education equips people with basic values and ethics, making them sharp and clever enough to deal with the real world.

Factor Affecting Quality Education

Faculty must be grounded in moral values, Indian languages, knowledge ethos, and also traditions. They must also be well-versed with the advancements in education and its pedagogy. Trained faculty may develop better ranges of practical concepts, skills, and strategies in their teaching and assessments. The presence of outstanding and enthusiastic faculty that cultivate excellence and innovation is the core determinant of quality.

A little bit discussion also researcher like to convey which may somehow responsible in quality teaching are institution's behaviour, quality assurance, culture, negativity, non-output behavioural such as below which better Institutions must be followed up.

- Educational Institutions must be equipped with the basic infrastructure and facilities, including clean drinking water, clean working toilets, blackboards/ whiteboards, offices, teaching supplies, libraries, labs, and pleasant

classroom spaces and campuses. Every classroom should have access to the latest educational technology that should enable better learning experiences.

- Teaching duties also should not be excessive and should also been given sufficient time to moderate institution and themselves.
- Student-teacher ratios should not too high.
- The activities of teaching should be remain pleasant and there should adequate time for interaction with students, conducting research, and other institutional activities.
- Faculty should be given the freedom to design their own curricular and pedagogical approaches within the approved framework, including textbook and reading material selections, assignments, and assessments.
- Institutions should also empower faculty to conduct innovative teaching, research, and service as they see best will be a key motivator for truly outstanding, and creative work.
- Promotion prospects, salary increases, recognitions, etc., should also be clearly defined by the educational institutions.
- Excellent faculty with high academic and service credentials as well as demonstrated leadership and management skills will be identified early and trained through a ladder of leadership positions.
- Leadership positions should not remain vacant.
- The institution should meet the standards of all the ranking institutions and should always try to get the best grade by conducting surveys of its institution from time to time.

The aim of this article is to achieve the best, motivated, energized and capable faculty in advancing students, institutions, and its profession. Should also provide professional development, career progression, a culture of excellence, outstanding and innovative teaching, research, institutional service, and community outreach are crucial to achieve best learning targets.

"Besides these Teachers should also play a vital role in building the Nation by educating students honestly and should build future of students and should not play with their future"

Adopting New Technologies to Enhance Quality of Education

The Internet of Things (IoT) services compositions now added, therefore, becomes an important challenge that aims at creating added-value services in current scenario of quality education by combining several services offered by thousands of smart devices in the IoT environment. There are several compositions,

aggregations of devices are available to enhance quality in education within a reasonable amount of time. The IoT-based services aim at creating open smart environments composed of pervasively intelligent devices (Smartphones, tablets, smart appliances, projectors etc.) offering heterogeneous functionalities abstracted as software services.

It cannot be denied that the standard of living of people can be raised only by educating them. So that they can enhance and use their capabilities to the right way. Education can help a person's social and economic conditions. Many Education policies have been formed for the development of our country. So keeping in mind the importance of Education, NEW EDUCATION POLICY is formed.

The NEP 2020 is founded on the five guiding pillars of Access, Equity, Quality, Affordability and Accountability. It will prepare our youth to meet the diverse national and global challenges of the present and the future. NEP 2020 focuses more on practical rather than theoretical learning. The new education policy enables every student to get quality education irrespective of their socio-economic background, gender or disability. NEP 2020 enables teachers to use a variety of learning techniques and experiments. Overall, the NEP 2023 provides for large-scale reforms in higher education, aiming to bring in more flexibility, shifting the focus from exam-centric to holistic and experiential, clear cut provision of entry/exit options, key synchronization of vocational subjects, and portability of academic credits to enable more.

Key Highlights and Provisions of NEP 2020

National Education Policy 2020 has been announced on 29.07.2020. The National Education Policy 2020 proposes various reforms in school education as well as higher education including technical education. A number of action points/activities for implementation in school education as well as higher education are mentioned in the National Education Policy 2020. Details of the salient features of NEP 2020 are as follows-

i. Ensuring Universal Access at All Levels of schooling from pre-primary school to Grade 12;
ii. Ensuring quality early childhood care and education for all children between 3-6 years;
iii. New Curricular and Pedagogical Structure (5+3+3+4);
iv. No hard separations between arts and sciences, between curricular and extra-curricular activities, between vocational and academic streams;
v. Establishing National Mission on Foundational Literacy and Numeracy;

vi. Emphasis on promoting multilingualism and Indian languages; The medium of instruction until at least Grade 5, but preferably till Grade 8 and beyond, will be the home language/mother tongue/local language/regional language.

vii. Assessment reforms - Board Exams on up to two occasions during any given school year, one main examination and one for improvement, if desired;

viii. Setting up of a new National Assessment Centre, PARAKH (Performance Assessment, Review, and Analysis of Knowledge for Holistic Development);

ix. Equitable and inclusive education - Special emphasis given on Socially and Economically Disadvantaged Groups (SEDGs);

x. A separate Gender Inclusion fund and Special Education Zones for disadvantaged regions and groups;

xi. Robust and transparent processes for recruitment of teachers and merit based performance;

xii. Ensuring availability of all resources through school complexes and clusters;

xiii Setting up of State School Standards Authority (SSSA);

xiv Exposure of vocational education in school and higher education system;

xv. Increasing GER in higher education to 50%;

xvi Holistic and Multidisciplinary Education with multiple entry/exit options;

xvii. NTA to offer Common Entrance Exam for Admission to HEIs;

xviii. Establishment of Academic Bank of Credit;

xix Setting up of Multidisciplinary Education and Research Universities (MERUs);

xx. Setting up of National Research Foundation (NRF);

xxi 'Light but Tight' regulation;

xxii. Single overarching umbrella body for promotion of higher education sector including teacher education and excluding medical and legal education- the Higher Education Commission of India (HECI)-with independent bodies for standard setting- the General Education Council; Funding-Higher Education Grants Council (HEGC); accreditation- National Accreditation Council (NAC); and regulation- National Higher Education Regulatory Council (NHERC);

xxiii. Expansion of open and distance learning to increase Gross Enrolment Ratio (GER).

xxiv. Internationalization of Education

xxv. Professional Education will be an integral part of the higher education system. Stand-alone technical universities, health science universities, legal

and agricultural universities, or institutions in these or other fields, will aim to become multi-disciplinary institutions.

xxvi. Teacher Education - 4-year integrated stage-specific, subject- specific Bachelor of Education

xxvii. Establishing a National Mission for Mentoring.

xxviii. Creation of an autonomous body, the National Educational Technology Forum (NETF) to provide a platform for the free exchange of ideas on the use of technology to enhance learning, assessment, planning, administration. Appropriate integration of technology into all levels of education.

xxix. Achieving 100% youth and adult literacy.

xxx. Multiple mechanisms with checks and balances will combat and stop the commercialization of higher education.

xxxi. All education institutions will be held to similar standards of audit and disclosure as a 'not for profit' entity.

xxxii. The Centre and the States will work together to increase the public investment in Education sector to reach 6% of GDP at the earliest.

xxxiii. Strengthening of the Central Advisory Board of Education to ensure coordination to bring overall focus on quality education.

NEP 2020 aim to increase the GER to 100% in preschool to secondary level by 2030 whereas GER in Higher Education including vocational education from 26.3% (2018) to 50% by 2035.

The NEP 2020 encourages interdisciplinary and multilingual education, fostering the promotion of a flexible curriculum that nurtures diverse skills and encourages seamless attainment of knowledge. Transformation is the Mantra that drives the New Education Policy 2020. The NEP 2020 aims to help students, define and recharge their creative, analytical, problem-solving, and critical thinking abilities, topped by actively pursuing digital literacy.

More Government Spending & Initiatives

The government should increase spending on education and introduce initiatives like Poshan Shakti Nirman, Beti Bachao Beti Padhao, and Sarva Shiksha Abhiyan. Adoption of technology: Technology should be adopted to improve the quality of education and make it more accessible.

Conclusion

Quality education specifically entails issues such as appropriate skills development, gender parity, provision of relevant school infrastructure, equipment, educational materials and resources, scholarships or teaching force, digital library,

adding/enhancing digital aids in classrooms, online material/videos availability, online tutorials/classes, availability of digital tools, hearing aids, visual aids, visualization/graphs/pictorial etc.

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Empowering the Future Educators: A Comprehensive Examination of the Significance of Integrating NEP 2020 Awareness in Pre-Service Teacher Education

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Abstract

India's National Education Policy (NEP) 2020 envisions transformative changes in the education landscape. This research explores the significance of integrating NEP 2020 awareness into pre-service teacher education programs. Pre-service teacher education is pivotal in shaping education quality, making alignment with NEP 2020 essential. The NEP 2020 emphasises a holistic, learner-centric approach, aligning closely with pre-service teacher education objectives. It advocates a shift from content-heavy pedagogies to critical-thinking-focused methods, multidisciplinary curriculum exposure, and lifelong learning for educators. NEP 2020's principles directly impact pre-service teachers, emphasising critical thinking, scientific temper, and teacher professionalism. This paper highlights NEP 2020's potential to revolutionise teaching practices through competency-based education and co-curricular integration. Challenges, such as infrastructure limitations, faculty training, and curriculum reform, are balanced by opportunities for tailored programs. The research synthesises existing literature and underscores the importance of NEP 2020 in pre-service teacher education. It contributes to educational reform discussions and emphasises the role of teacher preparation in realising NEP 2020's objectives. Integrating NEP 2020 awareness into pre-service teacher education can enhance the quality of educators, nurturing well-rounded learners, and advancing education quality in India.

Keywords

NEP 2020, Awareness, Future Educators, Teacher training.

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Introduction

The global expansion of schooling in the past three decades is unprecedented, with primary school enrollment reaching near-universal levels, expected years of schooling rising rapidly, and a significant reduction in the number of out-of-school children (Pratham, 2019). However, despite these gains in access to education, a pressing issue known as the "learning crisis," as acknowledged by the World Bank, continues to plague the global education system. This crisis is particularly evident in India, home to the world's largest education system. While over 95% of children aged 6 to 14 years are enrolled in schools, the translation of this enrollment into meaningful learning outcomes remains a formidable challenge (Pratham, 2019).

The introduction of India's National Education Policy (NEP) in 2020 marks a significant milestone, coming after a hiatus of 34 years since the previous policy in 1986, with subsequent revisions in 1992 (MHRD, 2020). This policy was the result of six years of extensive collaboration and consultation with educators, policymakers, and civil society stakeholders, reflecting a democratic and aspirational approach. The NEP 2020 sets ambitious goals for India's education system, envisioning it to become "second to none" by 2040, with a focus on equitable access to high-quality education for all, irrespective of social and economic backgrounds (MHRD, 2020).

Central to the NEP's agenda is the imperative to bridge the gap between the current state of learning outcomes and the desired levels. It emphasises the need to adapt to a rapidly changing world and knowledge landscape, aiming to cultivate well-rounded individuals capable of rational thought, compassion, creativity, and ethical values. The policy advocates a shift from content-heavy curricula toward fostering critical thinking, holistic learning, and multidisciplinary education, challenging the prevalent culture of rote memorization and content-centric examinations (MHRD, 2020).

The NEP 2020 introduces several notable reforms, including the inclusion of early childhood education, a focus on equity and inclusion, a redefinition of "quality education," and teacher education reform. It extends the right to education to children as young as three years old, acknowledging the importance of foundational years in education. Additionally, it places significant emphasis on addressing the needs of socio-economically disadvantaged groups, expanding the concept of "quality" to encompass foundational literacy and numeracy, and introducing reforms in teacher education, including the Bachelor of Education (B.Ed.) programs and a heightened emphasis on mental health and social-emotional learning (MHRD, 2020).

The NEP 2020 is indeed ambitious and forward-looking, holding the potential to harness India's youthful population as a significant strength. However, realising

these goals require unwavering commitment, political will, and effective implementation. While the policy takes substantial steps towards inclusivity and equity, it also leaves room for further improvements, particularly in addressing deeply ingrained issues such as gender bias and caste discrimination. Moreover, the governance and management challenges within India's vast and diverse education system must be addressed comprehensively to ensure that these reforms translate into tangible learning outcomes.

This research paper aims to delve into the significance of integrating NEP 2020 awareness into pre-service teacher education in India. It recognizes that pre-service teacher education programs play a pivotal role in shaping the quality of education in the country, and thus, incorporating awareness of NEP 2020 becomes instrumental. The paper will explore how NEP 2020 aligns with the training and development of pre-service teachers, emphasising changes in curriculum, pedagogy, and assessment methods. It will also delve into the specific aspects of the policy that are directly relevant to pre-service teachers, such as multidisciplinary education, teacher professionalism, and continuous professional development. Additionally, the paper will analyse the potential impact of NEP 2020 on teaching practices and the role of pre-service teachers in realising the policy's objectives. Furthermore, it will address the challenges and opportunities in implementing NEP 2020 within pre-service teacher education, considering factors such as infrastructure, faculty training, and curriculum reform.

In pursuit of these objectives, this paper will draw insights from existing research evidence and scholarly articles that explore the impact of education policies on pre-service teacher education in India. By doing so, it aims to contribute to the ongoing discourse on educational reform and the critical role that teacher preparation programs play in achieving the objectives set forth by NEP 2020.

Literature Review

The National Education Policy (NEP) 2020 of India marks a significant milestone in the country's educational landscape. As the most comprehensive revision of educational policy since 1986, the NEP 2020 aims to address critical challenges in the Indian education system and set the stage for transformative changes. The integration of NEP 2020 awareness into pre-service teacher education holds the promise of enhancing the quality and effectiveness of teacher preparation programs and, consequently, improving the overall education system in India. This literature review explores key themes related to the NEP 2020, pre-service teacher education, and the intersection of these two critical components in India's educational ecosystem.

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Overview of the National Education Policy 2020

The NEP 2020, introduced after an extensive consultation process involving stakeholders from various domains, envisions a holistic and learner-centric approach to education. The main motive behind this policy is to globalise education at all levels. It emphasises flexibility, multidisciplinary learning, and the development of critical thinking skills. The policy's overarching goal is to nurture individuals capable of rational thought, creativity, empathy, and ethical conduct (Krishna Kumar, 2020). It recognizes the importance of foundational literacy and numeracy and sets forth a transformative agenda to bridge the gap between educational inputs and learning outcomes (Muralidharan et al., 2020).

Significance of Pre-service Teacher Education

Pre-service teacher education plays a pivotal role in shaping the quality of education in any nation. It is during this phase that future educators acquire the necessary knowledge, skills, and pedagogical competencies to excel in their roles as teachers. Quality pre-service teacher education programs are essential for producing competent and motivated educators who can effectively facilitate student learning (Darling-Hammond, 2017). A well-designed pre-service education curriculum not only equips teachers with subject knowledge but also empowers them to employ innovative pedagogical methods and adapt to evolving educational paradigms.

Alignment of NEP 2020 with Pre-service Teacher Education

The NEP 2020 aligns closely with the objectives of pre-service teacher education. It emphasises the need for teacher preparation programs to shift from rote learning and content-driven approaches to more holistic, inquiry-based, and critical-thinking-oriented pedagogies (NEP, 2020). The policy encourages curriculum reforms to ensure that pre-service teachers are exposed to multidisciplinary education, which equips them with a broader understanding of subjects and the ability to connect concepts across disciplines (Mishra & Das, 2021). Furthermore, the NEP 2020 underscores the significance of continuous professional development for teachers, making it imperative for pre-service programs to instil a culture of lifelong learning among educators (MHRD, 2020).

Relevance of NEP 2020 for Pre-service Teachers

Several aspects of the NEP 2020 directly impact pre-service teachers. The policy's emphasis on developing teachers' critical thinking skills, scientific temper, and ethical values resonates with the core objectives of teacher education programs (Krishna Kumar, 2020). Moreover, the NEP 2020 promotes teacher professionalism by recognizing the pivotal role teachers play in the education system and by fostering a sense of autonomy and accountability among educators (MHRD, 2020). Pre-service

teachers, as the future workforce of the education system, stand to benefit from these policy directives as they enter the teaching profession.

Impact of NEP 2020 on Teaching Practices

The NEP 2020 has the potential to revolutionise teaching practices in India. Pre-service teachers, as the bridge between educational policy and classroom implementation, will play a crucial role in realising the policy's objectives (Krishna Kumar, 2020). The shift towards competency-based education, flexibility in curriculum design, and the incorporation of experiential learning will require pre-service teachers to adapt and innovate in their teaching methods (MHRD, 2020). The policy's focus on holistic development and the integration of co-curricular activities will also necessitate a reevaluation of pedagogical approaches in teacher education programs (Mishra & Das, 2021).

Challenges and Opportunities

Implementing the NEP 2020 in pre-service teacher education is not without challenges. Infrastructure limitations, faculty training, and the need for comprehensive curriculum reform are among the hurdles that must be overcome (Bhatt, 2021). However, these challenges are accompanied by significant opportunities. The policy's call for autonomy and flexibility allows institutions to tailor teacher education programs to their unique contexts, fostering innovation and experimentation (Krishna Kumar, 2020). Moreover, the NEP 2020 opens doors for collaboration between teacher education institutions, universities, and schools, creating a supportive ecosystem for aspiring educators (NEP, 2020).

Several institutions and programs in India have already begun integrating NEP 2020 principles into their pre-service teacher education. These case studies and best practices offer valuable insights into how institutions can effectively align their programs with the policy's vision (Mishra & Das, 2021). For example, some teacher education colleges have revamped their curricula to focus on critical thinking, interdisciplinary approaches, and practical classroom experiences (Sharma, 2021). Examining such initiatives can provide guidance to other institutions seeking to implement NEP 2020-aligned reforms.

Previous Works

Existing research and scholarly articles have delved into the impact of education policies on pre-service teacher education in India. Studies have explored the challenges and opportunities associated with teacher preparation in the context of evolving educational paradigms (Darling-Hammond, 2017). Additionally, research has examined the effectiveness of various teacher education models and the outcomes of policy changes on teacher competencies and student learning (Muralidharan et

al., 2020). A study by (Mananthavan 2020), highlights that the awareness of NEP in educating environments is below average. A research study by (Fathima et al., 2023) commented that the government should create a teacher-only awareness campaign. These previous works provide a foundation for understanding the implications of NEP 2020 on pre-service teacher education.

This comprehensive literature review sets the stage for a deeper exploration of the integration of NEP 2020 awareness into pre-service teacher education in India. It highlights the critical role of teacher preparation programs in realising the policy's objectives and underscores the challenges and opportunities that lie ahead. The subsequent sections of this research paper will delve into specific aspects of this integration, drawing on both policy directives and empirical evidence to provide a holistic examination of the topic.

Discussion

The NEP 2020 places significant emphasis on holistic development, recognizing and fostering the unique capabilities of each student in both academic and non-academic spheres. Pre-service teachers can benefit from this approach by understanding that education goes beyond textbooks. They can learn to nurture students' creativity, critical thinking, ethical values, and life skills through effective and novel pedagogies, which are essential for their future roles as educators. The policy prioritises achieving foundational literacy and numeracy by all students by Grade 3. Pre-service teachers, especially students pursuing B.El.Ed. can receive training on effective strategies for teaching these foundational skills, ensuring that they are well-prepared to address the learning needs of young learners and to understand the dynamics of the new policy and its effect on the current elementary schooling landscape.

NEP 2020 advocates for flexibility in learning trajectories and the elimination of rigid separations between arts and sciences, curricular and extracurricular activities, and vocational and academic streams. Pre-service teacher education can incorporate these principles by exposing future educators to diverse teaching methods and interdisciplinary approaches, preparing them to adapt to the evolving educational landscape. The policy encourages a shift from rote learning to conceptual understanding. Pre-service teachers can be trained to foster critical thinking, logical decision-making, and innovation among their students, aligning their teaching practices with this pedagogical shift.

Value-oriented education has been an integral facet of education. The need for value education stems from the social malaise in the society and

education, being purposeful in making students responsible citizens, must address such deficiencies in values (Nair, H. B., & Padmaja, C. 2023). Pre-service teachers can be sensitised to the importance of imparting ethical values and constitutional principles like empathy, respect, scientific temper, and democratic spirit to their students. They can serve as role models for instilling these values in the next generation. India is a land of languages and our policy reflects the same. With an emphasis on multilingualism, pre-service teachers can be trained to promote linguistic diversity and use the home language/mother tongue/local language/regional language as the medium of instruction, ensuring effective communication and learning.

The NEP 2020 highlights the importance of life skills such as communication, cooperation, teamwork, and resilience. Pre-service teacher education can incorporate the development of these skills into their curriculum, equipping future teachers to prepare students for real-world challenges. Shifting from summative assessment to regular formative assessment aligns with the policy's objectives. Pre-service teachers can learn to use formative assessment as a tool for gauging student progress and providing timely feedback for improvement. The extensive use of technology in teaching and learning, as advocated by NEP 2020, can be integrated into pre-service teacher education programs. Future teachers can learn how to leverage technology to enhance their teaching methods and reach a wider audience.

Pre-service teachers can be trained to recognize and address the diverse needs of students. NEP 2020's emphasis on equity and inclusion ensures that educators are prepared to create inclusive learning environments. NEP 2020 recognizes teachers and faculty as the heart of the learning process. Pre-service teacher education can focus on continuous professional development, preparing educators for a lifelong commitment to learning and growth.

By aligning pre-service teacher education programs with the principles and foundations of NEP 2020, India can produce a new generation of educators who are not only well-versed in subject matter but also equipped with the skills and values needed to empower students and contribute positively to the country's educational landscape. This alignment will play a vital role in achieving the policy's goals and creating a more holistic and flexible education system in India.

Conclusion

The National Education Policy (NEP) 2020 represents a pivotal milestone in the landscape of Indian education. Its visionary approach, as outlined through a plethora of salient features, principles, and foundations, aims to redefine the way

education is perceived, delivered, and experienced in the country. This comprehensive policy emphasises holistic development, flexibility, and quality education across all levels. Moreover, it offers a transformative framework that holds the potential to significantly benefit pre-service teachers, subsequently shaping the educational future of India.

The NEP 2020's commitment to holistic development underscores the importance of nurturing every student's unique capabilities, a perspective that pre-service teachers can readily embrace. By recognizing the multifaceted nature of education, they can guide students to not only excel academically but also develop essential life skills, ethical values, and critical thinking abilities. This holistic approach ensures that learners are well-equipped to face the challenges of a rapidly evolving world.

The policy's focus on foundational literacy and numeracy sets a crucial foundation for pre-service teacher education. Future educators must be well-versed in effective teaching strategies to help students achieve proficiency in these fundamental skills. Furthermore, the emphasis on flexibility in learning trajectories and the removal of artificial boundaries between disciplines prepares pre-service teachers to adapt to diverse educational needs and evolving pedagogies.

NEP 2020's commitment to promoting conceptual understanding over rote learning aligns with the goals of pre-service teacher education. By instilling creativity, logical decision-making, and innovation in students, educators contribute to a more dynamic and forward-thinking society.

Ethical values and constitutional principles, which are integral to the policy, serve as cornerstones of a just and inclusive society. Pre-service teachers, as catalysts of change, play a pivotal role in imparting these values to the next generation, fostering empathy, respect, and a sense of responsibility.

Multilingualism and the power of language underscore the importance of linguistic diversity. Pre-service teachers can contribute to the preservation and promotion of local languages, ensuring that education remains accessible and relevant to all communities. Life skills are vital for students to thrive in the real world. Pre-service teacher education can incorporate the development of communication, cooperation, teamwork, and resilience into the curriculum, thus equipping educators with the tools to prepare their students effectively.

The transition from summative to formative assessment is a significant shift advocated by NEP 2020. Pre-service teachers can learn to use assessment as a means of understanding and enhancing student progress, moving away from a culture of coaching towards a culture of learning.

The integration of technology into education, another core aspect of the policy, aligns with the modernization of pre-service teacher education. Future educators can harness technology to enhance their teaching methods and reach a broader audience.

Equity and inclusion, central tenets of the NEP 2020, require educators to recognize and address the diverse needs of students. Pre-service teacher education must prepare educators to create inclusive learning environments that ensure all students have equal opportunities to thrive.

Continuous professional development, coupled with the policy's recognition of teachers as the heart of the learning process, emphasises the significance of lifelong learning for educators. Pre-service teacher education programs should instil a commitment to continuous growth and development in future teachers.

Limitations and Future Research Opportunities

While this review provides an in-depth analysis of the National Education Policy (NEP) 2020 and its implications for pre-service teacher education, it is essential to acknowledge its limitations. First, this review focuses primarily on the policy's potential impact and does not assess its implementation at the ground level, which may present its own challenges and opportunities. Additionally, the scope of this review does not include an evaluation of the policy's outcomes and effectiveness.

Future research in this field could encompass several areas. Evaluative studies are crucial to assess how effectively NEP 2020 is being implemented and whether it achieves its intended objectives. Longitudinal research can track the long-term impact of the policy on students, educators, and the education system as a whole. Comparative studies with other countries' education policies can offer valuable insights into the strengths and weaknesses of NEP 2020. Furthermore, research on innovative pedagogical approaches and teacher training methods aligned with the policy's principles can contribute to the ongoing improvement of pre-service teacher education.

The National Education Policy 2020 heralds a transformative era in Indian education. Pre-service teachers, as the architects of this new educational landscape, must be prepared to embrace its principles and foundations fully. By aligning their training and practices with the policy's visionary objectives, pre-service teachers can contribute to a more holistic, flexible, and equitable education system that empowers students to excel in the 21st century. Through rigorous research and evaluation, the impact and effectiveness of the policy can be continually assessed, paving the way for continuous improvement and progress in Indian education.

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Role of NEP 2020 in Students' Career Development

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Abstract

Education plays a crucial role in achieving full human potential in order to establish a democratic society. Government Education policies put particular emphasis on the development of each individual's creative potential. The National Education Policy 2020 is a comprehensive education policy which is introduced by government of India in July 2020. Its prime motive is to transform the education system in India by giving educational opportunities to all by promoting equality in terms of education and making the students capable to get employment without much difficulty. The policy aims to increase the career development in higher education to 50% by 2035. For this purpose government promotes the use of technology and skill development in higher education. This new holistic approach will bring a space to explore and grow in, creating more employment opportunities in our country. Its target is to bring long lasting career options for the students. The NEP 2020 has developed a flexible learning model that allows students to select their courses and subjects based on their interests and aptitudes. This will make the students enable to pursue their passions and explore new career paths. In this context, this paper focuses on the role and challenges of NEP 2020 towards skill and career development in higher education in India.

Keywords

Skill Development, Career Development, NEP 2020, Higher Education

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Introduction

The old National Policy on Education 1986 has been replaced with the new policy. The strategy provides a thorough framework for education from primary to higher education, as well as for vocational training in both rural and urban areas. By 2030, the strategy wants to completely transform India's educational system. In July 2020, the Union Cabinet of India approved the New National Education Policy (NEP) with the purpose to implement modern improvements in the Indian education system from the school to the college level. This policy is based on the idea that India should become a "superpower of global knowledge."The goal of the policy is to change the Indian educational system so that it can be learner-centered and accessible to all students. NEP 2020 puts a strong emphasis on the value of interdisciplinary and multidisciplinary education, pedagogical changes and improved governance in higher learning institutions. A comprehensive and all-encompassing education for students might be provided by the policy, which has the potential to significantly improve the quality of education in India. In the past, when monarchs were in power, Gurukuls, type of education in ancient India were promoted to entail all-around growth of a child. All trades including carpentry, gardening, cooking and all others were taught to the kids, preparing them for their future. The NEP 2020 provides a strong framework for delivering career guidance in schools. Schools may empower students to make wise decisions regarding their future jobs and help them realize their full potential by implementing the NEP's suggestions. The students have a variety of course options to choose from and can acquire a variety of knowledge, allowing them to make an informed career decision. Today's education system should not provide students just a degree but it should also be able to teach students technical skills, job-related information, and employability abilities. It is recommended that the new educational system will provide students with employment options by providing high-quality instruction with a global perspective and learner-centric pedagogy. Students who want to develop their careers in hardware and software, may find new options in technological education(IT Industry) (Sundaram, 2020).The concept has the ability to greatly raise the standard of education in India and give children a thorough and all-encompassing education (Jain & Goel, 2023). The NEP also encourages the growth of a strong research culture in higher education institutions, which will assist the development of new ideas and advancements that can be used in many different kinds of fields (Akram & Bhat, 2023).The National Education Policy 2020 is currently transforming the higher education sector in India. This policy lays a major emphasis on promoting interdisciplinary study, providing fresh subject matter, opening up new prospects

for students, and providing flexible course alternatives (Sowani, 2023).The current education system has been solid on changes and the time has come for government and autonomous powers to begin working together towards nation-building. The National Education Policy (NEP) 2020 imprints a noteworthy improvement in our training framework. The current educational system has been strong in adapting. It's time to let private speculation into the training component and the moment has come for the government and independent powers to start collaborating on national development. A favorable impact can be achieved through effective educator advancement, the assembly of their responsibilities within a structured framework and sporadic implementation and evaluation. Our training framework has significantly improved as a result of the National Education Policy (NEP) 2020.A strong framework for implementing career counseling in schools is provided by NEP 2020. Schools may empower students to make effective choices about their future employment and give them the opportunity to realize their full potential by implementing the NEP's recommendations.

Key Highlights of NEP 2020

- The new policy strives for 100% GER in school education by 2030 and universalisation of education from preschool to secondary level.
- The new 5+3+3+4 school curriculum includes 3 years of Anganwadi/Pre-school instruction and 12 years of formal education.
- There is a focus on fundamental literacy and numeracy skills, and there is no strict division between academic, extracurricular, and vocational education in schools. Vocational education will begin in classes six and seven with internships.
- Multidisciplinary Education and Research Universities (MERUs), to be established to provide the best multidisciplinary education of global standards in the country, at par with IITs, IIMs.

Role of NEP in Career Development

Higher education plays an important role in preparing students for their careers. It prepares students to get success in the professional world with the help of knowledge and skills. The role of NEP in career development is given below:

- **Online Education:** The National Education Policy (NEP) encourages the creation of digital infrastructure in educational institutions and places a strong emphasis on its use. The policy is aware that students can access a range of educational resources through technology, including online courses, webinars, and virtual classrooms. Students can now learn whenever they

want, from anywhere, at their own pace. The NEP understands the importance of digital literacy and therefore strives to develop programs for kids. This will better prepare pupils for the digital age by giving them the necessary digital skills.

- **Integrated Education:** Holistic learning is an educational technique that stresses the development of the student as a whole person, encompassing their physical, emotional, cognitive, and social well-being, according to the National Education Policy (NEP) 2020. It strives to create a well-rounded individual who can deal with many issues and situations with assurance and competence. The NEP promotes a multidisciplinary approach to education by integrating multiple academic disciplines and encouraging critical thinking, creativity, and problem-solving skills. It also emphasizes the importance of teacher training and professional development to promote a comprehensive approach to education and encourage experiential learning, where students may put their knowledge and skills into practice in authentic contexts.
- **Skill Development:** The Indian educational system has undergone significant changes as a result of the NEP 2020, allowing students to pursue academic interests outside of the traditional fields of science, business, and the humanities. By choosing lessons that complement their hobbies and career goals, students can strengthen their essential skills and broaden their perspectives. The policy places a strong emphasis on skill development and vocational training for students in addition to academic education, giving them access to knowledge and experience from the real world. This comprehensive approach to education guarantees that students are ready for their future careers and can contribute meaningfully to society.
- **Internationalization and Collaboration in Reorganizing Education:** The NEP places a strong emphasis on the value of collaboration and globalization in education. To expose students to other cultures and better prepare them for a future of global connectivity, the strategy encourages relationships between Indian and foreign academic institutions. The goal of the policy is to both recruit foreign students to India's higher education system and provide Indian students with the option to study abroad.
- **Multidisciplinary Approach:** The traditional subjects of Science, Commerce, and Humanities are no longer the only options available to students under NEP 2020. Students can choose from a variety of courses, and it gives them the chance to develop their fundamental abilities.

Additionally, the National Education Policy 2020 strongly favors the inclusion of vocational training.

- **High Quality Education:** The NEP 2020 program permits international universities to open campuses and conduct business in India. Students will benefit from having access to an international education of the highest caliber. They will be ready to compete and meet the highest standards around the world. This will enable them to begin concentrating on developing themselves in accordance with the chosen job path.

The NEP 2020 is a comprehensive and innovative framework for reforming the Indian educational system. It lays the foundation for an all-encompassing, varied, and adaptive approach to education that puts each student's personal development first. The policy emphasizes early childhood education, digital infrastructure, career training, and internationalization of education.

Challenges in Implementing NEP 2020

- **Quality of Teaching and Learning:** The main motive of NEP 2020 is to bring positive changes in teaching learning methods in higher education. However our education department has been facing several issues in this area like lack of scholars and resources, outdated curriculum and so on. It becomes a challenge for the government to overcome these shortcomings, but government has to take serious actions to improve the quality of teaching and learning in higher education.
- **Research and Innovation:** NEP 2020 puts more emphasis on research and innovation in higher education. However it also seems a difficult task because there are many obstacles on the way like lack of financial support, less talented and qualified researchers, shortage of infrastructure and so on. The government will have to find solution of these problems in order to promote research and innovation in higher education.
- **Lack of Access to Higher Education:** It is quite obvious that there are many areas and sections in India where higher education facilities have not reached yet. So NEP 2020 aims that higher education should not stay untouched in any section of society. However it is not easy enough to fulfill this aim because still there are abundant barriers on the way such as poverty, gender bias and shortage of infrastructure. The Government needs to find out solution of these barriers carefully so that higher education can be accessible everywhere.
- **Lack of Funding:** The government budget allots roughly INR 1.13 trillion (£11.3 billion) for spending on K–12 and higher education. A budget of

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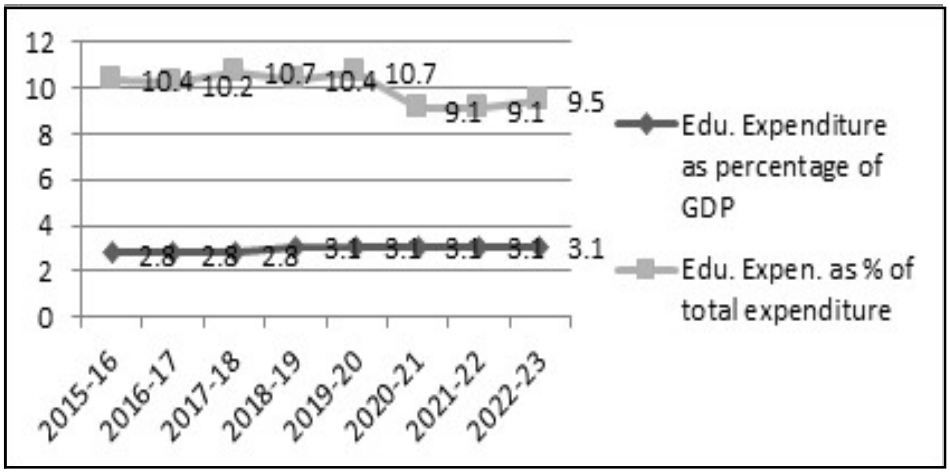
about £352 million has been set aside for technical and vocational education. The charts below show that education spending dropped in 2020 and 2021 as a result of the COVID-19 pandemic, which caused disruption to school functioning and planned activities as well as reprioritization of funds to healthcare and pandemic management. According to India's latest Economic Survey 2022–23, total education outlay, including both national and state-level expenditure, added up to 2.9 percent of the country's 2022 GDP—a proportion that has remained constant for the last four years. This is much lower than the ambition of India's education budget to be 6 percent of GDP, as set out in the National Education Policy 2020.

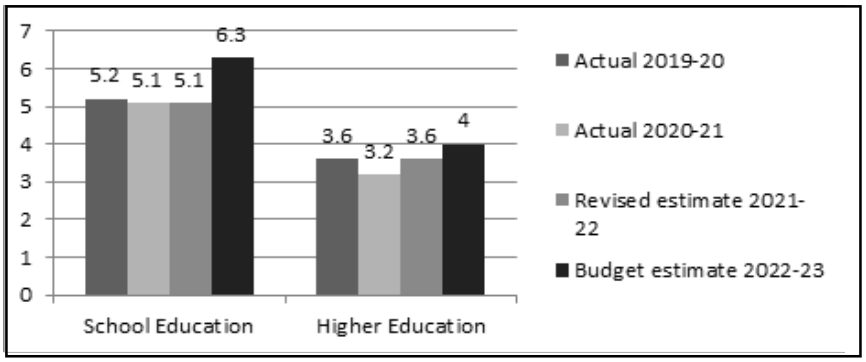
Education Spending as a % of GDP and % of Total Government Spending



Source: Economic Survey, 2022-23

The national education budget is divided into two parts based on the two principal departments of the Ministry of Education – the Department of School Education and Literacy, and the Department of Higher Education. For 2022-23, the budget for school education spending is GBP 6 bn (INR 63,449 crore) and has increased by 22 per cent over its previous year's revised allocation. The higher education budget has also increased by 13 per cent over its previous year's allocation and is GBP 4 bn (INR 40,828 crore). The education budget has been increasing over the years consistently and the trend during last four years can be observed for school education and higher education separately in the graph below:

Education Budget Break up Over Last Four Years



Source: britishcouncil.org

The implementation of NEP 2020 requires significant funding, and the policy document does not provide clear guidelines on how the funding will be raised. However, the implementation of the NEP 2020 presents several challenges, such as shortage of trained teachers, funding, infrastructure etc.

Conclusion

In conclusion, the NEP 2020 is expected to bring many changes in Indian educational system with a focus on career development of students. The NEP aims to encourage skill-based learning, research and innovation while establishing a multidisciplinary approach to education. The NEP encourages students to explore various career options and provides them with the necessary support to achieve their goals. Students will be able to select from a variety of subjects in the courses and acquire a broad range of information which will allow them to make informed professional decisions. However government has to face many challenges in order to implement NEP 2020 in field of career development so that it can provide better results and meet the needs of the society and the community.

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Skill Development and Atmanirbhar Bharat: Empowering The Nation

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Abstract

Under the banner of Atma Nirbhar Bharat, India has embarked on a transformative journey toward self-reliance and economic empowerment. This paper demonstrates the transformative potential of cultivating a competent workforce via the prism of skill development. It investigates the impact of skill development activities on employment, emphasizing how these initiatives have been critical in tackling the nation's unemployment problems. Case studies as well as success stories demonstrate how skill development has enabled individuals from varied origins to secure employment and contribute to their communities.

Entrepreneurship, another pillar of Atma Nirbhar Bharat, is investigated as a result of skill development. This article explains how skill learning enables individuals to pursue entrepreneurial pursuits while also encouraging innovation and self-sufficiency.The relationship between skill development and economic growth is explored critically, with an emphasis on the positive relationship between a competent workforce and economic prosperity. This link acts as a catalyst for the expansion of many industries, ultimately contributing to India's self-sufficiency ambitions.Despite the positive picture, obstacles in skill development remain.

The report outlines these difficulties and provides policy ideas and tactics to solve them in order to ensure a strong and sustainable economy.As India envisions a self-sufficient future, skill development emerges as a critical pillar, allowing people and the nation as a whole to realize their full potential and contribute to a vibrant Atma Nirbhar Bharat. This paper offers significant insights into the complex relationship between skill development and self-reliance, offering a comprehensive view of this critical aspect of India's march toward economic empowerment and self-sufficiency.

Keywords

Skill development, Self reliance, Auto delivery collaboration, vibrant economy, Entrepreneurship.

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Introduction

What is Skill Development?

Skills development refers to the process of acquiring the ability or aptitude to do difficult activities or job functions smoothly and adaptively through continuous and methodical efforts. Simply said, skills development is the process of recognizing skill gaps and working to improve them. Simply said, skills development is the process of recognizing skill gaps and working to improve them.

To be successful in the 21st century work market, one must have a diverse skill set that includes:

1. Foundational and higher order skills are cognitive abilities that include the ability to comprehend complicated ideas, adapt well to one's surroundings, learn from experience, and reason. Cognitive skills include fundamental literacy and arithmetic, as well as problem-solving, communication, and information processing.
2. Socio-emotional skills, or the ability to handle relationships, emotions, and attitudes. These abilities include the ability to skillfully manage interpersonal and social settings, as well as leadership, teamwork, self-control, and grit.
3. Specialized skills refer to the knowledge, expertise, and interactions required to complete a certain task, including mastery of relevant materials, tools, or technologies as well as specialized technical and cognitive abilities. This area also includes entrepreneurship skills.

The skills listed above describe the ability to safely access, manage, comprehend, integrate, convey, evaluate, and generate information.

The Significance of Skill Development in Today's Fast-changing World

In today's fast-changing environment, skill improvement is critical.To stay up with the changing world, skills are required. People need additional skills to compete in the labor market and achieve in life because the speed of change is so quick.The development of skills is critical for economic progress and social stability.You may be wondering why skill development is so important in terms of economic growth, unemployment, and social stability. So, here some things you should be aware of:

- Skill improvement aids in job placement. People with skills find it easier to establish their own businesses or find work that they enjoy.
- Skill development helps people stay in their careers. Companies that invest in human capital, development can maintain their employees for a longer period of time and reduce turnover costs like as recruiting, training, and

lost productivity owing to a high rate of employee turnover (this occurs when a person leaves a position soon). This is significant since turnover costs firms money and affects productivity levels in enterprises with a high rate of staff turnover (for more details, read the linked article).

- Skill development assists people in obtaining better jobs by enhancing existing talents or learning new ones. This includes strengthening communication skills with coworkers, problem-solving abilities, reading speed, making smarter decisions, and so on. We become more valuable employees as a result, which means we will earn greater incomes over time when our employers acknowledge our worth by offering us raises so that they do not lose us.
- Skilled people can be more self-sufficient and autonomous in their daily lives. They have a better chance of finding job, which is essential because persons with learning disabilities are frequently excluded from the labor field.Workforce productivity and efficiency are increased via skill development.
- Employee productivity and efficiency improve as a result of skill development, An employee's productivity is directly proportionate to the talents they possess. A skilled employee can accomplish more in less time, making him or her more productive than an inexperienced one. This guarantees that your company gets the most out of its resources without sacrificing quality.
- It lowers employee turnover, Employee turnover is one of the most significant sources of waste in any firm. When employees often abandon their jobs owing to a lack of career possibilities or poor working circumstances,

How Skill Development Initiatives have Aided in Job Creation in India?

Putting the accent on skill development, Prime Minister Narendra Modi stated on Wednesday that India must become the global capital of human resources, similar to how China is the world's manufacturing.Noting that India will have a surplus of 40 to 50 million workers over the next decade, Modi underlined the importance of equipping this workforce with the skills and abilities required to address global concerns, warning that the demographic dividend might otherwise become a hurdle. "Creating jobs and developing skills are top priorities for India," Modi stated at the launch of the National Skill Development Mission in New Delhi. "If China is recognized as the world's 'manufacturing factory,' India can become the world's 'Human resource capital,' he explained.

Modi ji stated that the country requires a "futuristic vision" and plans for the next ten years. He told an audience of many central ministers, chief ministers, and business leaders that there is a need to map work requirements for both domestic and global markets and then establish skill development targets appropriately. "We have to train keeping in mind jobs and development," he told reporters. Between now and 2022, India wants to train 402 million people, with at least 110 million needed in over 25 industries like textiles, autos, construction, banking, and retail.

According to S. Ramadorai, former vice-chairman of Tata Consultancy Services Ltd and head of the National Skill Development Agency, the Skill India mission has taken center stage, with the prime minister lending his support. "The social and economic value of construction skills has taken center stage." "Skill development is a national priority... and it is also a business opportunity," he stated.

Ramadorai emphasized the importance of ecosystems, using Silicon Valley in the United States as an example. During skill development he emphasized the need of entrepreneurial promotion.

Modi stated that the government would seek to foster both apprenticeship and entrepreneurship. He stated that India must be able to identify future possibilities and "prepare for them today itself." He emphasized that job seekers, employers, students, and policymakers must all think alike. Linking aspirations to skill training, Modi stated that if India's foremost technical institutes—the Indian Institutes of Technology—made a name for themselves globally in the twentieth century, the twenty-first century requires ITIs (Industrial Training Institutes) to gain global recognition for producing quality skilled manpower.

He stated that India's underprivileged portions desire to live in dignity, and that learning new skills will give them energy and confidence. He also presented ITI graduates with work credentials and a new skill card,pupils who have taken skill-training courses. Finance Minister Arun Jaitley stated at the same event that the skills project is about preparing for the future. According to Jaitley, the convergence of the Skill India and Make in India programs will offer new opportunities for Indians.While Make in India aspires to increase manufacturing in India and hence create more jobs, Skill India strives to provide the industry with a job-ready human workforce to promote productivity and, eventually, economic growth.

Skills and entrepreneurship minister Rajiv Pratap Rudy stated that there is a rising awareness of the need for skills and that the current government is stepping up efforts and focusing attention on it. He stated that while fewer than 4% of the

Indian workforce is skilled, the proportion in China is far higher.47% in Germany, 74% in Japan, 80% in South Korea, and 96% in South Korea. Every year, almost 12 million people enter the Indian labor force, and more than 65% of the country's population is under the age of 35.

The Prime Minister also launched the Pradhan Mantri Kaushal Vikas Yojana (PMKVY), the skill and entrepreneurship ministry's flagship skill training scheme that aims to incentivize skill training by providing financial rewards to candidates who successfully complete approved skill training programmes.

Over the next year, PMKVY aims to skill 2.4 million youth, across India. For the first time, the skills of young people who lack formal certification, such as workers in India's vast unorganised sector, will be recognised. Through an initiative known as 'Recognition of Prior Learning' (RPL), a million youths will be assessed and certified for the skills that they already possess.

Modi also launched a Skill Loan scheme under which bank loans ranging from 5,000 to 1,50,000 will be made available to 3.4 million youths seeking to attend skill development programmes over the next five years.

The government on Wednesday also launched a skill card, which can be used by employers to verify the training credentials of job seekers. Youths interested in participating in skill development programs during the next five years.On Wednesday, the government also unveiled a talent card, which companies may use to validate job applicants' training credentials.

Entrepreneurship's Role in Economic Development

There are nine key findings from the role of entrepreneurship in economic development:

1. **Improves the Standard of Living**-Entrepreneurship plays an important part in economic development since it may significantly raise the standard of living for individuals and communities by establishing industries and creating money and new employment. Entrepreneurship not only creates large-scale jobs and income streams, but it also has the potential to improve the quality of individual lives by creating products and services that are inexpensive, safe to use, and bring value to their lives. Entrepreneurship also results in the introduction of new products and services that alleviate the scarcity of vital commodities.
2. **Economic Independence**-Entrepreneurship can help both the country and the entrepreneur achieve economic independence. It decreases the country's dependency on foreign goods and services and fosters self-sufficiency.

Manufacturing items and services can also be exported to other markets, resulting in growth, self-sufficiency, currency inflows, and economic independence. Entrepreneurs, too,gain ultimate control over their financial future. They earn revenue and riches via their hard work and ingenuity, helping them to achieve economic independence and financial stability.

3. **The Advantages of New Firms and Businesses**-To start a business, entrepreneurs discover market requirements and create solutions through their products and services. Entrepreneurs have a critical role in influencing the economy and generating a more dynamic and diverse economic landscape by establishing new organizations and businesses. Entrepreneurship also encourages innovation and competition, which results in new and improved products and services contributed to economic growth and development.
4. **Job Generation**-Entrepreneurship is a critical driver of job growth. Running new enterprises and following regulatory requirements Customers lead to new job chances. Entrepreneurship also stimulates innovation and competition, which attracts other entrepreneurs and investments, resulting in the creation of new jobs in a variety of industries ranging from manufacturing and construction to service and technology.
5. **Promotes Capital Formation-**The act of accumulating resources, such as savings and investments, to fund new business endeavors and support economic growth is known as capital creation. By attracting investment, entrepreneurship can promote capital formation. Furthermore, the establishment of new enterprises and the expansion of existing businesses can help to the development of a more diverse and dynamic economy, which supports capital formation and opens the door to a diverse variety of investment options.
6. **Poverty Eradication**-People can be lifted out of poverty through entrepreneurship by creating jobs and increasing economic activity. Entrepreneurship also helps to grow local economies and raises the overall standard of living.
7. **Growth of the Community**-Entrepreneurship supports economic growth, increases access to goods and services, and raises general living standards. Many businesses contribute to the well-being of their communities by catering to underprivileged areas and manufacturing environmentally friendly products. Their efforts can serve to strengthen and revitalize communities while also promoting social and economic development.

8. **Optimal Resource Utilization**-Entrepreneurship may assist in identifying market possibilities and allocating resources in the most efficient manner feasible. Entrepreneurs are also important in generating novel products and services that fulfill customers' wants while making the most use of available resources.
9. **Expansions Gross National Product and GDP Per Capita Income**-Entrepreneurship can help boost economic growth and prosperity by raising Gross National Product (GNP) and Per Capita Income (PCI). GNP assesses a country's total economic production, whereas PCI calculates average income per person. An increase in GNP may result in an increase in PCI. Entrepreneurship can boost the economy by spawning new firms and industries, which can lead to job creation, greater consumer spending, and increased tax income.

Economic Development and Skill Development

Why do we need skill development and curriculum changes? Whenever the service industry is expanding, why does India require skill development? If an injection of cash will result in GDP growth, why are we spending billions on skill enhancement? What contribution will skill development make to the Indian GDP as the country moves toward the Fourth Industrial Revolution? These inquiries were inspired by my earlier essay on Skill Development. Following on from my last essay on skill development, it has been discovered that per capita income and economic efficiency are changing in the opposite way. The service industry is increasing and absorbing unskilled labour, yet the figures show that per-capita income is declining in the long run. One of the most significant consequences of a lack of skill development is that social spending rises, causing a further rippling effect on the economy. The entire country, if not the entire world, is banking on the formula Economy = Credit = Lowering Taxes = Consumption = Disaster Economy. Yes, it's a disaster economy. Lowering taxes discourages investment in a democratic country. The problem is that Total Factor Economy is being neglected, as are the fundamentals of human labor. If a qualified person is unable to find work, this does not imply that there are no jobs accessible in the market.

(Doubling Productivity = (Lack of Skill) = Falling Per Capita Income = Falling Consumption = Injection of Liquidity (Interest Rate Cut/Taxation Rate Cut) = No Growth in Human Labour Per Capita Income = Slow Economic Growth)

India is aiming for a USD 5 trillion GDP, which cannot be attained solely through the service industry and consumption. Manufacturing and eliminating

inequality will lead to economic growth in India. Indian GDP growth cannot be achieved through capital or liquidity injections into the society. When the labour force's skilled education is improved, employment enters the scene, and this is what promotes consumption. We are attempting to encourage people to borrow and spend by decreasing taxes and interest rates. This consumption theory will fail. The demographics of the economy are changing at the same rate as the velocity of technological change. India is currently preparing for consumption growth by lowering taxes and creating liquidity into the system. However, these triggers will fail to propel the Indian economy forward since the important sector of human labour is unable to obtain consumption. Capital and labour are now the two divisions that help the economy expand. Labour is suffering from a lack of skill, and money is being deployed in the wrong location. Infrastructure, education, and technological innovation all contribute to total factor productivity. Skill development is required since economic growth will be limited, and unskilled employment per capita income will decline over time as the labour force expands, breaking the monopoly of the same.

Conclusion

- In conclusion, "Atmanirbhar" or self-reliance is a crucial goal for any nation's sustainable development, and it can be achieved through a combination of economic policies, innovation, and self-sufficiency in critical sectors.
- The importance of skill development cannot be overstated in today's rapidly changing world. Investing in skill development not only empowers individuals but also strengthens a nation's workforce and competitiveness.
- To truly become "Atmanirbhar" or self-reliant, a nation must prioritize both economic self-sufficiency and skill development, ensuring that its citizens are well-equipped to contribute to the growth and resilience of the country.
- In the pursuit of self-reliance and skill development, collaboration between the government, private sector, and educational institutions is essential to create a sustainable and empowered future for the nation.
- As we move forward, it is evident that "Atmanirbhar" and skill development are not just standalone concepts but are deeply intertwined, with skill development being a key enabler of self-reliance and economic growth.

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Bridging the Gender Gap: Women in STEM and Sustainable Development in India

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Abstract

In the pursuit of achieving the Sustainable Development Goals (SDGs), education emerges as a cornerstone, laying the foundation for progress across all domains. In the 21st century, the significance of STEM (Science, Technology, Engineering, and Mathematics) education has grown exponentially. STEM education stands as a powerful catalyst for societal transformation, particularly in its capacity to empower women globally. This comprehensive approach to education equips young women with the skills and knowledge vital for navigating an increasingly complex and technologically driven world. However, it is alarming to note that women continue to be substantially underrepresented in the realm of STEM education and subsequently in STEM careers. STEM is of paramount importance to achieve the UN's Sustainable Development Goal 5 which underscores the attainment of gender equality which includes women's use of enabling technology. India, with its rapid strides in diverse sectors, including technology, innovation, and sustainable development, has recognized the need for active female participation in STEM-related disciplines. As a consequence, the Indian government has implemented a variety of policies to promote gender diversity in STEM fields. These efforts have fostered a variety of policies and encouraged a conducive environment in educational institutions across the nation. In spite of these commendable initiatives, the gender disparity in STEM fields remains elusive. This research paper delves into the multifaceted landscape of women in STEM in India. It not only provides a comprehensive overview of existing policies and initiatives but also offers a critical examination of their effectiveness and the challenges that persist. In addition, this paper provides a series of well-informed suggestions and recommendations for bolstering India's commitment to gender equality in STEM education and careers. By addressing the gender disparity in STEM,

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India can advance its sustainable development agenda and foster a more inclusive, equitable, and technologically advanced society.

Keywords

Sustainable Development Goals, Gender Equality, Education, STEM.

Introduction

Education is essential to achieve all the sustainable development goals and has its own dedicated Goal 4, which aims to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all."

In the 21st century, the need for STEM education has grown exponentially. STEM is a widely used acronym for the fields of Science, Technology, Engineering, and Mathematics. The term is used with students from preschool to post graduate levels, and to describe careers in the respective fields. The STEM acronym was introduced in 2001 by scientific administrators at the U.S. National Science Foundation (NSF). Under STEM All these subjects are taught in such a way that students learn to apply the concept in real-time situations. A robust STEM education creates critical thinkers, problem-solvers, and next generation innovators. STEM education is the need of the hour as it helps the students make the leap from users of technology to innovators. Thus, it promotes cross-disciplinary education & skill development and lays the ground for students' successful careers. STEM education enables individuals to navigate the complexities of the contemporary world. In addition, it promotes inclusivity and diversity by removing socioeconomic and gender barriers. It empowers individuals to become informed citizens able to make informed judgments regarding scientific and technological advancements that have societal consequences.

Women in Stem

Science and innovation that fails to take women into account can have long-lasting impacts. The underrepresentation of women in STEM disciplines and occupations can have real-world consequences for women and society eroding intellectual inclusivity, meritocracy goals, national competitiveness, and high-quality advancements.(Moss-Racusin, 2021) STEM has emerged as an influential tool for transforming the lives of women all around world. This comprehensive approach to education equips young women with the skills and knowledge necessary to navigate a world that is becoming increasingly complex and technologically driven.

Since Marie Curie in 1903, only 17 women have won the Nobel Prize in physics, chemistry, or medicine, compared to 572 males. Just 33% of the world's researchers are women and they are awarded less research funding than men, and are less likely to be promoted. (UN women2022) While a growing number of women are enrolling in university, many opt out at the highest levels required for a research career.(UNESCO)

due to which the number of women in STEM faculty positions remains largely unchanged due to factors such as numeric underrepresentation, stereotypes ,lack of supportive social networks and chilly academic climates.(casad et al, 2021)

Girls are attending school in greater numbers than ever before, but they do not always have the same opportunities as boys to complete and benefit from an education of their choice. Too many girls and women are hindered by prejudices, social norms, and expectations that affect the quality of their education and the subjects they study. They are notably under-represented in science, technology, engineering and mathematics (STEM) education, and consequently, in STEM careers.

This gender gap is alarming, particularly considering that STEM careers are frequently referred to as the occupations of the future, driving innovation, social well-being, inclusive growth, and sustainability.

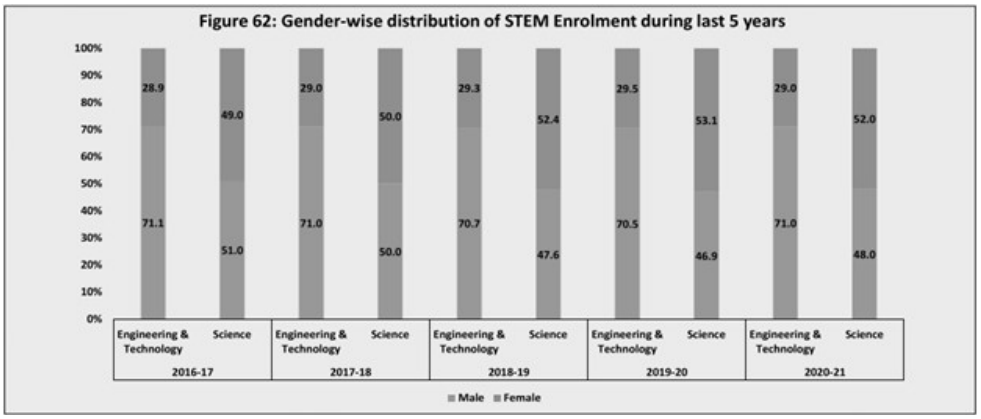
Women, Stem and Sustainable Development

Education and gender equality are integral components of the 2030 Agenda for Sustainable Development, ratified by the United Nations General Assembly in 2015, not only as separate Sustainable Development Goals (SDGs) but also as drivers for the achievement of all other SDGs. Science, technology, and innovation are essential for achieving the SDGs as it helps in addressing the effects of climate change, increasing food security, enhancing healthcare, managing limited freshwater resources, and protecting biodiversity. Girls and women play a crucial role in the design of solutions to enhance lives and generate inclusive green growth that benefits everyone. They are the underutilized population with the greatest potential to become the next generation of STEM professionals; therefore, we must invest in their talent. This is important for human rights, diversity, and sustainable development. Science, technology, engineering and mathematics serves as the foundation for the 2030 Agenda for Sustainable Development, and STEM education can provide women with the knowledge, skills, attitudes and behaviours required for inclusive and sustainable societies. excluding girls and women from STEM education and profession is detrimental to everyone.(UNESCO 2017) Challenging misconceptions and dispelling stereotypes around STEM is of paramount importance to achieve the UN's Sustainable Development Goal 5 which underscores the attainment of gender equality which includes women's use of enabling technology, Notably Information and Communication Technology as a means of achieving economic empowerment and greater agency and also many other STEM-related SDGs.

India and Women in STEM

India is progressively shifting its focus to move from women's development to women-led development to achieve equitable and sustainable development of the

country. Fifty percent of our valuable human resource, which consists of women, is an integral part of the country's socioeconomic development and for the accelerated advancement of science and technology. Their education is crucial not only for society, but also for developing the nation's vitality, especially when women pursue careers in science. Achieving sustainable development goals requires the empowerment of women. India is rapidly advancing in various sectors, including technology, innovation, and sustainable development. STEM education is crucial for females in India because it provides them with equal opportunities to excel in disciplines traditionally dominated by men. By providing women with a firm foundation in science, technology, engineering, and mathematics, STEM education equips them with problem-solving and critical thinking skills, fostering creativity and innovation. In addition, STEM education prepares girls to meet the demands of a swiftly evolving employment market where proficiency in these areas is in high demand. Taking into consideration that India is one of the countries that produce the highest number of scientists and engineers. According to a CSIR-National Institute of Science Communication and Policy Research report (2022) While India produces the highest percentage of women STEM graduates in the world about 40%, their share in STEM jobs in the country is very low at 14% and needs to be improved.



Source: https://aishe.gov.in/aishe/gotoAisheReports

According to the AISHE report of 2021, women outnumber men in science-related fields in terms of participation. However, their enrollment in engineering remains significantly low, with only 29% of women compared to 71% of men choosing this field, even after several years.

Women in India face numerous obstacles in moving up the academic and administrative ladder due to systemic barriers and structural factors. Gender equality

in scientific laboratories and higher education institutions is not only dependent on numbers but also on various micro and macro level factors operating at the institutional level. Despite the ground-breaking research and performance, women in the field of STEM are known to be paid less for their research work compared to men — not progressing as much in their careers. This glaring underrepresentation of women in STEM limits a nation's ability to find inclusive, sustainable solutions to modern problems and build a better society for all. The Indian government has been taking various steps for enhancing the participation of women in STEM education, The sixth five-year plan included a chapter on women and development for the first time. The purpose of this section was to ensure that all development programmes are engendered and it also included a section on women in science and science for women. Government of India has implemented various policies and initiatives aimed at boosting women's involvement in STEM fields. These measures seek to enhance female representation and engagement in science, technology, engineering, and mathematics domains. The National Education Policy 2020 in India advocates integrating the humanities and arts with STEM subjects for multidisciplinary learning. This will result in positive learning outcomes for students as a result of foster greater creativity and innovation, critical thinking, research, and advanced cognitive abilities among students.

1. **Gender Advancement for Transforming Institutions (GATI):** The Department of Science and Technology (DST) introduced the Gender Advancement for Transforming Institutions (GATI) Project, marking a groundbreaking initiative aimed at fostering gender equality within the realms of science and technology. This innovative project, one of three initiatives unveiled by DST on February 28, 2020, National Science Day, strives to guide higher education and research institutions towards embracing diversity, inclusivity, and the full spectrum of talent as crucial elements for their advancement. More specifically, GATI seeks to cultivate a supportive atmosphere that encourages the equitable participation of women in Science, Technology, Engineering, Medicine, and Mathematics (STEMM) fields across all tiers, while addressing deeply rooted challenges in this regard.
2. **Women Scientists Scheme (WOS): Launched by Department of Science and Technology in the Year 2022-23.** This initiative aimed to provide opportunities to women scientists and technologists between the age group of 27- 57 years who had taken a career break but desired to return to the mainstream and assist them in re-entering the mainstream. Provide a launchpad for further forays into the field of science and technology.

Following three categories of fellowships, with research grants, are available for Indian citizen:

- Women Scientist Scheme-A(WOS-A): Research in Basic/Applied Science
- Women Scientist Scheme-B (WOS-B): S&T interventions for Societal Benefit
- Women Scientist Scheme-C (WOS-C): Internship in Intellectual Property Rights (IPRs) for the Self-Employment.

3. **Consolidation of University Research for Innovation and Excellence in Women Universities (CURIE):** A special programme was launched in the year 2008-09 by The Department of Science and Technology to aid women only universities for enhancing their R&D infrastructure. The primary objective of the CURIE programme is to train and produce world class women scientists in all discipline of Basic Sciences & Technology who would be able of conducting cutting-edge research in their respective fields.
4. **Mobility Scheme:** The Mobility Scheme is designed to offer women scientists a chance to address challenges they face in their current employment because of relocation. (Marriage, transfer of husband to another location within the country, caring for ailing parents, and accompanying children studying in different city). The scheme serves as a temporary solution to bridge this transition period while they explore new career opportunities at their new location.
5. **Indo-U.S. Fellowship for Women in STEM:** The scheme was announced jointly by the Department of Science and Technology and the Indo-U.S. Science and Technology Forum (IUSSTF) and provides opportunities for Indian Women Scientists, Engineers, and Technologists to engage in international collaborative research in premier institutions in the United States of America, thereby enhancing their research capacities and capabilities.
6. **Science and Technology for Women:** launched by the department of science and technology. The scheme aim to promote research, development and adaptation of technology to improve the quality of life and working conditions for women; to provide new employment opportunities for women particularly in rural areas; and to boost the contribution of women scientists to technology-based development.
7. **SERB-Power Fellowship:** This fellowship aims to recognize and reward to outstanding female researchers in Indian academic institutions and

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Research and development laboratories who possess doctoral degree in any branch of science and engineering. Under this scheme Fellowship of Rs. 15,000/- per month is given in addition to regular income.

8. **Vigyan Jyoti Scheme:** The scheme is geared towards addressing the underrepresentation of women in diverse fields of Science, Technology, Engineering and Mathematics (STEM) in the country. In its initial phase the "Vigyan Jyoti" has been introduced at the school level wherein meritorious girl students of grades 9-12 are being encouraged to pursue higher education and career in STEM fields. This program is designed to offer support and guidance starting from the school years, commencing from the 9th grade and continuing through the PhD level, with the goal of motivating girls to pursue STEM careers in areas that are typically underrepresented. Various activities such as science camps, specialized lectures and classes, counselling for both students and parents, interaction with role models, visit to Knowledge Partners/ Research Labs/ Industries are being conducted in the programme in order to motivate girls.
9. **Women Entrepreneur Quest (WEQ)**: launched by the department of science and technology. It is an initiative aimed at strengthening and constructing a dynamic and supportive ecosystem for founder/co-founder of an early stage technology startup. This competition aims to encourage, promote, and exhibit technology start-ups founded by women entrepreneurs, complementing the National Policy for Skill Development and Entrepreneurship of the Government of India.
10. **Women Involvement in Science, Technology and Research**: The program's goal is to enhance scientific capacity, retain and promote women researchers in India & Germany by leveraging the complementary expertise in science, technology, innovation, and research collaborations between the two countries. ultimatley The schemes seeks to foster gender equity and inclusivity within STEM research. The grant covers basic project assistance for the awardee in the parent country and one month research stay in host country. The maximum grant for three years will be up to ¹ 39 lakhs.
11. **Women Technology Park**: The objective is to promote research, development and adaptation of technology within the aim to enhance the quality of life, workings conditions for women. this initiative also aims to create newer opportunities for gainful employment of women particularly in rural regions and boost the contribution of women scientists to technology based development.

Suggestions and Conclusion

India needs more women in scientific leadership and academia, as well as the application of science to improve the welfare of the nation. There exists diverse policies and enabling environment in different institutions in India but a unified strategy or set of guiding principles to close the gender gap are still lacking. Reasons that hold women back in STEM careers are certainly individual, complex, and manifold; therefore, it is important to look at factors outside of academia that are occurring in women's lives at the same time that they are pursuing their career search (Nimmesgern,2016). The stakeholders must identify and address the specific barriers that keep female students out of STEM fields. It is important that we not only explore how marginalized groups can be reached to develop STEM understandings, but also that we share best practices for educating our teachers to prepare them to teach STEM content and practices so that all students may learn.(Marrero et al, 2014) STEM fields should consider this in creating more collaborative and comfortable environment for women to better participate, retain and succeed in these fields. (Wuhib & Dotger,2014), interventions are also called for to encourage a family-friendly workplace that is open to and supportive of women managing a home and career.(xu, 2015) This clearly demonstrates a need for multi stakeholder interventions .Also the focus should be on the the technological empowerment of rural women for that the educated and privileged class of female scientists will be required to own the responsibilities. Awareness-raising, training programmes, and the development of entrepreneurship through technological interventions must be prioritised in mission mode.

Here are some suggestions and recommendations to achieve the greater participation of women in STEM :

- There is a need to Promote a culture of inclusivity and gender equality within STEM environments and address gender biases and organize workshops, seminars, and outreach programs to raise awareness about the benefits and opportunities in STEM fields.
- Feature female role models and highlight their success in STEM field.
- Implement STEM-focused programs and activities in schools from a early age.
- Establish mentorship programs where women in STEM can guide and support aspiring female students or professionals.
- Offer scholarships and financial aid specifically for women pursuing STEM education.

- Promotion of industry collaboration and partnerships between educational institutions and STEM industries to provide internships, research opportunities, and exposure to real-world applications.
- Engaging parents of girls in STEM can contribute to reshaping parental attitudes toward the participation of girls in pursuing their career in STEM fields.
- Enhanced collaboration with international organizations and institutions to share best practices and learn from successful initiatives in other countries.

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Nurturing Potential: The Imperative of Equity and Inclusive Education under National Education Policy 2020

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Abstract

This article explores the vital role that equity and inclusive education play in helping every student reach their greatest potential. The conversation focuses on the fundamental ideas that support an equitable and dynamic educational system, highlighting the necessity of offering equitable and accessible educational options. The essay highlights how equity and inclusivity support academic performance, equip students for the demands of a globalized society, and unleash the potential that lies inside each person by examining the many advantages of creating an inclusive learning environment. The article also discusses the difficulties in putting equity and inclusive education into practice, providing helpful advice on how to foster an environment of transparency, ongoing professional growth, and the efficient conversion of laws into useful practices. With education undergoing a seismic upheaval, valuing diversity and encouraging tolerance becomes both a moral duty and a calculated investment in developing the multitude of skills that will create a peaceful and prosperous future.

Key words

Nurturing Potential, Equity, Inclusive education, National Education Policy.

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Dr. Remmiya Rajan P.

Nurturing Potential: The Imperative of Equity and Inclusive Education under National Education Policy 2020

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Introduction

At the entrance to the University of South Africa, there is a famous saying from Nelson Mandela that says, "It is not necessary to destroy any country with long-range missiles or atomic weapons." It only calls for lowering the bar for education and allowing pupils to cheat on exams.

Importance of Education can be Imagined through Following Examples

- These doctors cause the deaths of their patients.
- The collapse of the structure as a result of said Engineer's conduct
- Money is lost as a result of these accountants' and economists' conduct.
- Humanity is doomed when such doctors and engineers handle it.
- When such judges handle cases, justice is lost.

There is a connection between the breakdown of the nation and the shortcomings of education. More individuals will be able to access education, more people will enter the workforce, and all students will have the chance to pursue lifelong learning when diversity, equity, and inclusion are deeply established in the educational system. As per the 2020 National Education Policy (NEP), "the single greatest tool for achieving social justice and equality is education." The development of inclusive communities and society at large will be impacted by this. In order to put policy into practice, it is necessary to address the facilities, services, and educational barriers that affect Children with Special Needs (CWSN).

Rationale of the Study

The realization that education is a basic human right and a potent catalyst for both social and individual growth serves as the justification for including fairness in new educational policies. The need to address gaps in educational access, opportunities, and outcomes has come to light more and more in recent years. Several important factors influence the incorporation of equity in educational policies, including:

- **Equitable Society and Justice**

Fairness and social justice values are consistent with educational equity. It aims to address systemic and historical injustices that have caused disparities in educational opportunities for various groups according to ability, gender, socioeconomic status, and other variables. The goal of educational policies is to build a just and equitable system that benefits everyone by resolving these discrepancies.

- **Realizing People's Full Potential**

Education equity acknowledges that each person has distinct skills, aptitudes, and potential. Educational policies seek to optimize each student's potential by

offering equitable learning and growth opportunities, regardless of their background. This strategy advances the larger objective of developing a competent and competent workforce in addition to being ethically correct.

- **Getting Ready for a Diverse Future:**

The idea that education should equip people to flourish in a varied society is reflected in inclusion and equity in education. Technology breakthroughs and globalization require a workforce with a wide range of viewpoints, abilities, and cultural competences. Prioritizing equity in education aims to provide students with the skills they need to manage a world that is becoming more interconnected.

- **Economic and Social Development:**

It is acknowledged that differences in educational attainment are a factor in larger economic and social inequality. Educational policies become a strategic tool for fostering social cohesion and economic development by addressing these inequities. A population with higher levels of education is more likely to participate actively in civic life and make beneficial economic contributions.

- **Satisfying Every Learner's Needs:**

Each learner is different, with their own learning preferences, skills, and obstacles. Policies for inclusive education recognize this diversity and place a strong emphasis on meeting the needs of all students. This method makes ensuring that instruction is customized to each student's unique needs, including those who have particular learning challenges or disabilities, rather than being one size fits all

- **International Promises and Sustainable Development**

Many nations match their educational programs to international obligations, such the Sustainable Development Goals (SDGs) of the United Nations. Goal 4 is especially concerned with making sure that everyone has access to high-quality, inclusive education. Nations understand that advancing toward these global objectives calls for a dedication to justice within their own educational frameworks.

The concept that education is a potent agent for constructive social transformation serves as the fundamental justification for the inclusion of equity in new educational policies. These policies seek to unlock each learner's full potential and create a more equitable, prosperous, and harmonious society by eliminating disparities and fostering inclusion.

Objectives of the Study

- **To study the Issues on Equity and Inclusion in Higher Education**
- **To study on the Approaches of NEP 2020 towards an Inclusive and Equitable Quality Education for all**

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- Equity and inclusion
- Inclusion of Community Participation
- Gender Equality and Inclusion
- Inclusion of New Pedagogical System for Early Childhood Care and Education
- Inclusion of Skill Courses
- Inclusion of Graduation Research and Exclusion of M.Phil.

- **To analyse the Steps taken in order to overcome the Problem**

Methodology of the Study

Official government publications, reports, and documents pertaining to education policy are frequently the subject of articles and analyses in journals and educational websites such as Education Week, Inside Higher Ed, and The Chronicle of Higher Education. To locate academic publications and research papers on new education policy, academic resources like JSTOR, ProQuest, and Google Scholar were used; examined publications from research centres and think tanks with an emphasis on education, such as the Pew Research Centre, RAND Corporation, and the Brookings Institution, which are used to create indices of inclusive education and equity that are utilized to create new standards for educational policy. When making decisions and recommendations, the outcomes of these indicators are taken into account.

Analysis and Interpretation of Data

1. To Study the Issues on Equity and Inclusion in Higher Education

At every educational level, the disparities between gender and socioeconomic categories have gradually closed because of the Indian education system and the government initiatives that followed. Nonetheless, there are still large gaps, especially for socioeconomically disadvantaged students and those who have long been underrepresented in the educational system, especially in secondary education. Socio-Economically Disadvantaged Groups (SEDGs) include populations such as migrant communities, low-income households, children in vulnerable situations, victims of human trafficking or the offspring of victims of human trafficking, orphans, including urban beggars, and the urban poor. These groups can also be categorized according to their gender identities (especially those of women and transgender people), socio-cultural identities (such as those of Scheduled Castes, Scheduled Tribes, OBCs, and minorities), geographical identities (such as students from small towns, villages, and aspirational districts), disabilities (such as learning disabilities), and other traits. The following subsections provide a quick summary of the SEDGs related to socio-cultural identities:

Enrollment

These groups can also be categorized according to their gender identities (especially those of women and transgender people), socio-cultural identities (such as those of Scheduled Castes, Scheduled Tribes, OBCs, and minorities), geographical identities (such as students from small towns, villages, and aspirational districts), disabilities (such as learning disabilities), and other traits. The following subsections provide a quick summary of the SEDGs related to socio-cultural identities:

Schedule Caste

The enrolment and retention rates of the Scheduled Castes are negatively impacted by a number of factors, including poverty, societal norms and practices, poor access to high-quality education, and language. One of the primary objectives would be to close the gaps in the educational achievements, involvement, and access of children from Scheduled Castes. Special attention should also be given to Other Backward Classes (OBCs), who are typically classified as lagging behind in both social and scholastic spheres.

Tribal Community

Children from Scheduled Tribes and tribal people face various problems due to historical and geographic factors. Tribal children can see education as something that is unimportant to their everyday life and is academically and culturally alien to them. Even though there will be a lot of programmatic work done both now and, in the future, to better the lives of children from tribal communities, unique approaches are needed to ensure that the children from these communities benefit from these interventions.

Minorities

The representation of minorities in secondary and postsecondary education is disproportionately low. The Policy recognizes the importance of programs that help minorities' children further their education, especially those who are disproportionately underrepresented in the student population.

2. To Analyse the Different Approaches of NEP 2020 towards an Inclusive and Equitable Quality Education for All

Equity and Inclusion

The objective of equity and inclusion now forms the cornerstone of the new NEP. Inclusion in higher education or the classroom requires reorganizing the entire system, which includes curriculum, pedagogy, and leisure opportunities, among other things, in order to offer a wide range of educational opportunities. Preventing the segregation and isolation of individuals with disabilities, members of racial and

ethnic minorities, and those who may be denied access to school due to language barriers is the aim of the strategy. We use language to make sense of the world, and it is with language that power, legitimacy, and authority are established and upheld. NEP 2020 aims to achieve universal proficiency in several languages throughout different educational levels.

Inclusion of Community Participation

Reducing the proportion of students who are excluded because of their language or disability has been attempted through community participation and a purposeful awareness of roles and responsibilities. Pupils will be motivated to learn more about India's human values, knowledge system, and rich cultural legacy. Additionally, they will learn more about equity, inclusiveness, gender equality, and human rights—all of which promote a respect for variety.The main objective of NEP 2020 has been to advance human creativity, which is crucial for the educational system of the twenty-first century, and to foster fair regard for all religions.

Gender Equality and Inclusion

NEP aims to achieve equity and inclusion in and through education by addressing disparity, vulnerability, and inequality in learning outcomes as well as in learning outcomes and all forms of exclusion and marginalization in education access, participation, retention, and completion. Gender equality and inclusion are crucial for achieving these objectives and making sure that no one is left behind. In education, more focus has to be placed on accessibility, equity, and quality. Significant progress has been noted in recent times with regards to female involvement all the way up to the secondary level. Government programs for females, like "Sukanya and Balika Samridhi Yojana," "Beti Bachao Beti Padhao," and a number of others, may be responsible for these developments. However, the number of girls enrolled in upper secondary school is lower than that of boys. By addressing disparities, vulnerabilities, and inequalities in learning outcomes as well as in learning outcomes and all forms of exclusion and marginalization in education access, participation, retention, and completion, NEP seeks to achieve equity and inclusion in and through education. Reaching these goals and ensuring that no one is left behind depend on gender equality and inclusion. More attention needs to be paid to quality, equity, and accessibility in education. There has been a noticeable increase in female participation all the way up to the secondary level in recent years. The policies and activities of the government may have contributed to this advancement. The majority of NEP's current efforts are directed toward raising.

Inclusion of New Pedagogical System for Early Childhood Care and Education

The pedagogical system has been divided with the intention of incorporating young learners in the age range of three to five into formal education. Additionally, this stage of education will be included in the school curriculum in accordance with global standards, which was not done previously. NEP aims to achieve equity and inclusion in and through education by addressing disparity, vulnerability, and inequality in learning outcomes as well as in learning outcomes and all forms of exclusion and marginalization in education access, participation, retention, and completion. Gender equality and inclusion are crucial for achieving these objectives and making sure that no one is left behind. In education, more focus has to be placed on accessibility, equity, and quality. Significant progress has been noted in recent times with regards to female involvement all the way up to the secondary level. This progress can be the result of government policies and initiatives. Using mother tongue as the major language of instruction at this early educational stage will benefit from the strategy of using the coding system in early education to compete with industrialized nations.

Inclusion of Skill Courses

Teaching pupils' life skills has also been an objective, to enable them to support themselves once their schooling is over. Offering extracurriculars, career classes, and modern subjects will entice students to return to their schools. "Bal Bhavans" will be constructed as a distinct daytime boarding school with the goal of offering students individualized support systems that are tailored to their requirements and promoting play, career exploration, and artistic endeavours.

Inclusion of Graduation Research and Exclusion of M.Phil.

Students who had multiple abnormalities in their education and were unable to finish will benefit from the inclusion of a four-year undergraduate program. There are multiple entrance and exit points. There is a one-year sabbatical offered for students. Students might choose to halt their graduation process and put their credits away in the academic bank for a later start. Post-graduation lasts one or two years, depending on how many graduating years a student passes. Research output and capacity across disciplines are also included in NEP 2020. The challenges of society could only be addressed by outstanding multidisciplinary research across fields, and the world's best research has only ever been conducted in multidisciplinary university settings. Article 32 of the Constitution guarantees the right to an education. Education has never been a factor in voting rights because anyone who is at least 18 years old and literate can cast a ballot. A glimmer of optimism and the basis for all educational decisions is the new National Education Policy, 2020, which discusses

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sustainable human development, equitable universal education, and learning outcomes with a research-oriented mindset. India has always placed a high priority on education at the top of its agenda for development. Through encouraging community involvement and bridging social, gender, and geographic divisions, this approach would guarantee equity and promote equitable opportunities for all. It will be a beautiful mix of modern and ancient knowledge systems that will help you absorb Indian culture and values while also motivating you to learn.

3. To Analyse the Steps taken to Fulfil the Task

- Provide the required government financing so that SEDGs education can take place.
- Clearly articulate goals for increasing GER in support of the SDGs. Raising the percentage of female HEI admissions Increase access by building more first-rate HEIs in Special Education Zones with aspirational districts and a bigger number of SEDGs. Create and maintain top-notch HEIs that offer multilingual or native language training.
- Boost funding and scholarships for SEDGs in HEIs that are both public and private. Organize outreach initiatives that emphasize higher education opportunities and SEDG awards. Create and oversee technological resources to improve learning outcomes and student engagement.
- Lower the opportunity costs and out-of-pocket expenses related to attending college. Expand the number of scholarships and financial aid available to students from low-income families. Inform people about scholarship opportunities and higher education options.
- Ensure that the admissions process is more friendly. Offer a curriculum that is more inclusive. Increase the employability of higher education programs. Increase the number of bilingual degree programmes taught in Indian languages.
- Make sure every building and facility is handicapped-friendly and wheelchair-accessible. Offer bridging courses to students with less fortunate educational backgrounds.
- Provide academic, socioemotional, and mentoring support to all such students through appropriate counselling and mentorship programs.
- Ensure that the gender identity issue is included in all HEI programs, including curricula, and that instructors, counsellors, and students are made aware of it. Uphold every anti-discrimination and anti-harassment legislation to the letter.
- Make comprehensive action plans for increasing SEDG participation, like the one outlined above, and include them into institutional growth plans.

Conclusion of the Study

To sum up, one of the most important steps toward developing a more just and equitable educational system is the adoption of new educational policies targeted at promoting inclusion and equity. In addition to acknowledging the variety of needs that children have, these policies work to remove structural obstacles that impede equitable opportunity for all students. By emphasizing inclusivity, these policies can close inequalities in educational access and provide equal access to high-quality education for students of different origins, skill levels, and socioeconomic situations. Furthermore, by advancing equity, these policies address systemic and historical injustices that have marginalized particular groups and create a supportive atmosphere for all students to succeed. The willingness of communities, legislators, and educational institutions to accept and successfully execute these policies will determine their success. In order to create an atmosphere where every student feels appreciated and supported, it is imperative that schools cultivate a culture of knowledge, tolerance, and admiration for diversity. To handle new issues as they arise and maintain these policies' long-term effects, we will need to continuously assess and modify them as we go. All children may be prepared for success in a diverse and interconnected world by working toward a more inclusive and equitable education system that fosters collaboration and involves stakeholders at all levels. In the end, pursuing inclusion and equity in education is a strategic investment that is also morally required.

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Indian Knowledge System: A Comprehensive Analysis in Light of the National Education Policy 2020

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Abstract

The Indian knowledge system seeks to encourage and foster more study to address current societal problems. The Vedas and Upanishads are the foundation of IKS. IKS courses already in existence may be synced to online learning environments. The quality of classroom instruction for IKS courses may be improved with the development of training and orientation modules for educators. To train teachers on specific subjects relating to the Indian Knowledge Systems, specialized teacher training centers will be established. Through Grand National Challenges, National Competitions, Hackathons, and innovation incentives, IKS will support innovation. For doing India-focused research, institutions may have access to international cooperation through organizations like the Indian Council of Historical Research (ICHR). IKS Centers will be established in a number of HEIs with initial seed financing. The public will be reached through a variety of channels in an effort to spread and popularize real IKS knowledge and foster the growth of knowledgeable and self-assured citizens. Through Jan Bhagidari activities akin to citizen science programs, people will be participating in various IKS initiatives. Through skill-based initiatives, employment possibilities for young people will be produced. IKS will advance heritage technology by offering technological solutions to India and the rest of the globe that will highlight Indian heritage. Its goal is to take 10% of global tourism and give our youngsters a ton of job chances.This is a documentary analysis that aims to trustify this fact.

Keywords

Indian knowledge system, Skill-based programs, Employment opportunities, NEP 2020, Vedic literature.

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Mr. Devdeep Sikdar

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Mr. Devdeep Sikdar

Introduction

The methodical transfer of information from one generation to the next is known as the Indian Knowledge System. Instead of being a tradition, it is a methodical system and a means of exchanging knowledge.The Upanishads, Vedas, and Upvedas provide the foundation of the Indian Knowledge System. This rich legacy of timeless Indian knowledge and philosophy is acknowledged as a guiding theme in the NEP-2020 (National Education Policy). Jnan, Vignan, and Jeevan Darshan are the three components of the Indian Knowledge Systems, which have developed via experience, observation, experimentation, and thorough analysis. Our school system, the arts, administration, law, justice system, health system, manufacturing sector, and commerce have all been touched by this legacy of validation and application. This has had an impact on Bharat's classical and other languages that have been passed down through artistic, literary, and oral traditions. It contains information on ancient India, its achievements and difficulties, as well as an understanding of the country's future goals with regard to ecology, health, education, and pretty much everything else.

Objectives of Indian Knowledge System

The goal of the Indian knowledge system is to encourage and enable future study in a number of areas, including psychology, neuroscience, holistic health, nature, the environment, and sustainable development, in order to address the problems facing modern society. Using our ancient knowledge systems, which are characterized by an unbroken tradition of knowledge transfer and a distinct point of view (Bharatiya Drishti), to solve current and emerging problems in India and the world is the main goal of drawing from the past and integrating Indian knowledge systems.

IKS Cell

Under the Ministry of Education (MoE), the Indian Knowledge System (IKS) at AICTE, New Delhi, is an innovation cell. It is meant to support multidisciplinary studies on all facets of IKS and to conserve and disseminate IKS for future study and social use. In the areas of arts and literature, agriculture, basic sciences, engineering and technology, architecture, management, economics, etc., it will actively work to disseminate the rich legacy of our nation and traditional knowledge.

Functions of IKS Division

The primary role of the IKS division is to encourage cooperation with private sector organizations by facilitating and coordinating inter and transdisciplinary work related to IKS that is being done by various institutions in India and overseas, such as universities, national importance institutions, R&D labs, and various ministries. Creating, directing, and overseeing topic-specific multidisciplinary research teams

made up of scholars from institutions, centers, and private persons are the others. Along with developing tools to conduct research and advocate policies as needed, the aforementioned goals include developing popularization campaigns, facilitating project funding, and creating and promoting IKS.

Vision

To promote interdisciplinary research on all aspects of 'Indian Knowledge Systems', preserve and disseminate 'Indian Knowledge Systems' for further research and societal applications.

Mission

1. Establish a database of people and organizations that have made contributions to the study, instruction, publication, and preservation of varied and rich ancient and modern Indian knowledge systems, including those related to art, music, dance, drama, mathematics, astronomy, science, technology, life sciences, environment and natural sciences, health care, yoga, law, jurisprudence, economics, social sciences, psychology, philosophy, management, linguistics, oral traditions of India, and knowledge concealed in Sanskrit, Prakrit, Tamil, Pali,etc.
2. Establish a site for the archiving and sharing of this wealth of knowledge. It should also be open and dynamic, operating in PPP mode like a wiki.
3. Encourage and facilitate more research in a number of fields, including as psychology, neuroscience, holistic health, nature, the environment, and sustainable development, to address the societal issues of the day.
4. To list academics and organizations that have worked in different IKS fields, as well as their works in those fields, and to classify the main fields.
5. To compile reports detailing the contributions made by each individual to IKS and to release periodicals.
6. To encourage IKS research in order to generate new knowledge, provide proof of concepts, and conduct productive multidisciplinary work that benefits society.
7. To establish research grants or fellowships for visiting professors, scientists, or scholars, including faculty members of science and technology at Sanskrit institutions and Sanskrit professors in IITs, IISERs, IIMs, and universities.
8. To contribute financially to publications, workshops, seminars, and research projects that further the cause of IKS. to make recommendations for how to include IKS into modern disciplines of knowledge taught in school and higher education's reference and text books.

9. To open IKS branches in general universities, Sanskrit universities, and other MoE-affiliated establishments.
10. To start interdisciplinary study involving contemporary streams and ancient Shastras by fostering cooperation and coordination between institutions under the Ministry of Education (MoE), other ministries, departments, independent researchers, NGOs, and private institutions working in the subject of IKS.
11. Investigate and implement a PPP model whenever possible (e.g., developing a full IKS portal and a wiki-style platform).
12. To form committees and expert groups to develop, carry out, and supervise the IKS division's goals.
13. To start any task, endeavor, project, or activity aimed at advancing IKS.

Subjects under Indian Knowledge System

IKS material is found in the humanities, engineering, medicine, agriculture, community knowledge systems, fine and performing arts, vocational skills, etc. The courses ought to have a clear mapping between the old IKS disciplines and the contemporary subjects like chemistry, math, physics, agriculture, etc., according to the requirements.

Indian Knowledge System in Education

Curriculum for both secondary and postsecondary education will incorporate the IKS in a methodical manner. In addition to using indigenous and traditional teaching methods, the IKS will incorporate tribal knowledge on subjects like mathematics, astronomy, philosophy, yoga, architecture, medicine, agriculture, engineering, linguistics, literature, sports, games, governance, polity, and conservation. Courses on traditional (organic) crop production, forest management, natural farming, tribal ethno-medical practices, etc. will also be offered. Students in secondary school will also have the option to take an interesting optional on Indian Knowledge Systems.

The policy acknowledges that students should absorb information about India's rich diversity directly from the source. This would include easy things like student field trips to different parts of the nation.This would not only encourage travel, but it will also contribute to the growth of information about different regions of the country and an awareness and appreciation of India's diversity, culture, and traditions. Under the 'Ek Bharat Shrestha Bharat' initiative, 100 popular tourist destinations will be chosen nationwide, and educational institutions will send students to study these locations' histories, scientific contributions, customs, indigenous

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literature, and knowledge, among other things, in order to expand their knowledge of these regions.

There are currently 32 IKS Centers that have been formed to spur original research, IKS teaching, and IKS dissemination. Projects like ancient metallurgy, ancient town planning and water resource management, ancient rasayanshastra, etc. are being implemented at 75 high-end, multidisciplinary research facilities. 5200 internships have been made available on IKS. conducted 50 national and international conferences, as well as workshops for faculty development. In addition to working on digitizing 1.5 lakh books, over 8000 HEIs have begun using IKS into their curricula.

Guidelines by the Ministry and Regulatory Bodies

For achieving the goals of NEP 2020, activities have been undertaken by the Ministry, Regulatory Bodies like UGC & AICTE and HEIs.

Guidelines for Incorporating Indian Knowledge in Higher Education Curricula has been issued on 13.06.2023

It emphasizes on the promotion of Indian Languages, Arts and Culture, and tries to remove the discontinuity in the flow of Indian Knowledge System (lKS) by integrating IKS into curriculums at all levels of education. It prescribes that every student enrolled in a UG or PG programme should be encouraged to take credit courses in IKS amounting in all to at least 5% of the total mandated credits (interested students may be allowed to take a larger fraction of the total mandated credits). At least 50% of the credits apportioned to the IKS should be related to the major discipline and should be accounted for the credits assigned to the major discipline. The medium of instruction for the IKS courses could be any of the Indian languages.

Guidelines for Training/Orientation of Faculty on Indian Knowledge System (IKS) has been Issued on 13.04.2023

It enables the faculties to generate a positive attitude towards IKS and promote interest in knowing and exploring more through induction programs and refresher courses.

Guidelines for Empanelment of Artists/Artisans–in–Residence in Higher Educational Institutions has been issued on 08.05.2023

To create collaboration between Artists and HEIs, to develop an effective structure of art education, involving skilled Kala Gurus in teaching, research, and other academic activities on a regular basis, which will synergize the artistic experience with the conventional education to be more productive and beneficial for the students.

Guidelines for the Introduction of Courses based on Indian Heritage and Culture have been Issued on 08.05.2023

To make people familiar with the rich cultural and intellectual heritage of India and offer short term multi-tier credit based modular programme with multiple entry and exit based on Indian heritage and culture. It includes dissemination and imparting of knowledge of various dimensions of learning in the spheres of Universal human values, Vedic Maths, Yoga, Ayurveda, Sanskrit, Indian Languages, sacrosanct religious regions located in the Indian subcontinent, Archaeological sites and monuments, Heritage of India, Indian Literature, Indian Sculpture, Indian Music and dance forms, Drama, Visual Arts, Performing Arts, Crafts and Craftsmanship etc. The IKS has made provision has been established for awarding minor degree to students who complete 18 to 20 credits in IKS. Mandatory credit component: Universities may introduce learner credits or IKS electives in all courses for imbibing learners across all disciplines with traditional knowledge and pride. UGC has already made it mandatory to include 5% of the total credits in the curriculum related to the IKS courses. AICTE has introduced IKS course for the first-year students in Engineering colleges.

Designing Regional Courses

States/UTs may document their respective native cultures, arts, crafts, traditions, architecture, food habits, languages, etc to tailor dedicated courses for learners.

Scope of Collaborations

Given the globalized history of India, multidisciplinary courses designed by universities may consider the scope of collaborating internationally wherever possible. For example, NCERT is undertaking inclusion of text highlighting historical ties between India and Indonesia at school level.

Online/ODL Courses

Existing IKS courses may be synced to digital learning platforms (SWAYAM, NPTEL) and via ODL for learners across geographies.

Recruitment

Entrance exam syllabus may be launched as a subject for testing under UGC-NET to create a cadre of specialized IKS faculty and researchers.

Regularized Faculty Training

Modules for training and orientation of educators may be designed to improve quality of classroom delivery on IKS courses. Establishment of specialized teacher training centers for training of teachers in specialized topics of the Indian Knowledge Systems by specialized IKS faculty may be done.

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Provide hands on Learning Opportunities

IKS Internships – Provide avenues for student internships/apprenticeships and provide counselling to IKS learners in convergence with BGSamvahan Karyakram, the internship programme launched by the IKS Division of MoE.

Hands-on-workshops: Provide opportunities for students to learn various skills in hands on workshops from the experts.

Hackathons: Conduct specialized IKS themed Hackathons and include IKS related topics in the Smart India Hackathon in synergy with the topics given by IKS Division of MoE.

Translation of Academic Content

Translation of Teaching Learning Materials for all disciplines into local languages may be done by IKS Centres to engage diverse learners & preserve indigenous identity.

Support Research and Innovation in IKS

Priority research funding - Dedicated research grants may be proposed through NRF in the future to boost IKS-related research proposals.

Make catalytic grants that encourage original, serious, and deep scholarly research in the IKS and rejuvenate IKS research in India.

Introduce IKS into the prestigious schemes such as PMRF for attracting best talent into the interdisciplinary IKS research. Promote innovation in the IKS through various grand national challenges, national competitions, and hackathons and incentivizing the innovation.

International collaborations

Institutions may access global collaborations through institutions such as Indian Council of Historical Research (ICHR) for conducting India-centric research. Include IKS as a theme in the ASEAN fellowships to foster collaborations among scholars and nurture next generation of scholars.

Fund Institutional Support Mechanisms

Establish institutional support mechanisms through the establishment of the IKS centers which will be catalysts for initiating research, education, and outreach activities in various parts of the country. Provide initial seed funding for the establishment of IKS Centers in various HEIs. Provide additional funding to establish global Centers of Excellence in focused areas.

Promote Jan Bhagidari

Reach out to public through various mechanisms (MyGOV competitions, conferences, exhibitions, programs on radio and television, social media, etc) to

disseminate and popularize authentic IKS knowledge to develop informed and confident citizenry. Involve people in various IKS initiatives through Jan Bhagidari programs similar to citizen science initiatives.

Create Employment Opportunities

Create employment opportunities for youth through skill based IKS based programs such as IKS based beautician and cosmetician training programs, Ayurveda based dietician programs, Gandhashastra based perfumery, among many uniquely IKS based skills. Promote heritage technology by bringing technology solutions to showcase the Indian heritage to Indians and the world. Aim to capture 10% of the world tourism market and provide massive employment opportunities to our youth.

Conclusion

IKS contains information about ancient India, its achievements and difficulties, and an understanding of India's goals for the future in terms of health, education, the environment, and really every element of existence. The goal of the Indian knowledge system is to encourage and enable additional research to address current socialproblems across a number of disciplines, including psychology, neuroscience, holistic health, environment, nature, and sustainable development. The Indian Knowledge System (IKS) is a cutting-edge organization that was founded to support multidisciplinary study on all facets of IKS and to conserve and distribute IKS for future study and societal uses. It will actively work to disseminate traditional wisdom and our nation's rich legacy. The IKS will cover and include mathematics, astronomy, philosophy, yoga, architecture, medicine, agriculture, engineering, linguistics, literature, sports, games, governance, polity, and conservation in addition to tribal knowledge and indigenous and traditional learning methods. This will not only encourage travel but also aid in raising awareness of and appreciation for India's variety, customs, and culture as well as knowledge of the country's numerous regions. Universal human values, Vedic mathematics, yoga, Ayurveda, Sanskrit, Indian languages, sacred religious sites on the Indian subcontinent, archeological sites and monuments, Indian heritage, Indian literature, Indian sculpture, Indian music and dance forms, drama, visual arts, performing arts, and crafts are among the topics covered. Universities may include IKS electives or learner credits in all courses to instill a sense of traditionalism and pride in students studying all subjects.

Five percent of the total credits in the curriculum must already be allocated to IKS courses, according to UGC regulations. Initiate research, teaching, and outreach initiatives across the nation by establishing IKS centers, which will serve as catalysts for the construction of institutional support systems.

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Digitalization of Education : A Step towards Education for All & Just Equitable Society with Reference to NEP 2020

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Abstract

It is known to all that we are living in a digital world. Technological advancements and drastic spread out of internet penetration in all parts of the country has made our phenomenological world digital. It has impacted every institution as well as various sectors of development like political, social, economical and Educational in a great deal. The Ministry of Electronics and Information Technology (MeitY), Government of India launched the 'Digital India' programme with the vision to transform India into a digitally empowered society and knowledge-based economy by ensuring digital access, digital inclusion, digital empowerment and bridging the digital divide. To achieve these objectives, particularly in rural, tribal and remote areas digitalization of education was started with full-flash support of the Ministry of Education that offers high quality educational programmes through DTH channels as well as web platforms under the aegis of PM e- Vidya.

Digitalization of Education refers to the process of a paradigm shift in our education system that advocates the introduction of e-content,e-learning,e- administration,technology and ICT based teaching-learning as well as massive use of online teaching and training that led to the better learning conditions and ensure access meaningful & mass learning and help us to attain educational objectives in terms of education for all. Digital initiatives taken by the present government have revolutionized the Education sector. Initiatives like online exams, development of various educational portals like Swayam e-pg portal,e-vidwan,e-yantra e-Kalpa,e-Vidya dan DIKSHA portal, NISTHA,Sugamya Pustakalaya and National Digital Library (NDL). In this regard NEP 2020 has also advocated and recognized the importance of leveraging the advantages of technology while acknowledging its potential risks and dangers. It calls for carefully designed and appropriately scaled pilot studies to determine how the benefits of online/digital education can be reaped while addressing or

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mitigating the downsides. In the meantime, the existing digital platforms and ongoing ICT-based educational initiatives must be optimized and expanded to meet the current and future challenges in providing quality education for all. Apart from that it also portrays that the explosive pace of technological development allied with the sheer creativity of tech-savvy teachers and entrepreneurs including student entrepreneurs,New technologies involving artificial intelligence, machine learning, block chains, smart boards, handheld computing devices, adaptive computer testing for student development, and other forms of educational software and hardware will not just change what students learn in the classroom but how they learn, and thus these areas and beyond will require extensive research both on the technological as well as educational fronts.

Hence the present article portrays an overview of digitalization of education in our country with respect to the recommendations of NEP 2020 with the aim to ensure access equality and quality education for all leading towards just equitable society.

Keywords

Digitalization of Education, NEP 2020, Education for all, Equitable society.

Introduction

The democratic welfare government is not only interested in creating educational institutions as infrastructure for education for all, but is also equally keen on quality-oriented, even-handed, and equitable education. In fact, the focus of the Global Agenda SDG 4 is to raise the standard of living and quality of life by ensuring quality and lifelong education irrespective of region, race, religion, color, and caste, etc. Thus, there is a strong focus in India to reach global targets and more importantly, this is due to the necessity of fulfilling the government's goals on overhauling India's education system in the context of far-reaching changes that have taken place in terms of economic, social, and scientific areas over a period of last twenty years. The outcome of all these complex issues and critical thinking across stakeholders in social development manifested into policy action called the Nationa Education Policy 2020(Muralidharan et al., 2022).

National Education Policy (2020) lays great emphasis on the use of educational technology to enhance the access of educational opportunities, improve the quality of education, address concerns of inclusion and diversity and improve access, quality, equity, affordability and accountability of the educational system in the country. Given the pace and depth of technological developments worldwide, NEP-2020 calls for addressing the broader consequences of disruptive technologies that are relevant to education. These include research, de-skilling and awareness raising to enable our education system to cope with the rapid and disruptive changes that places us individually and nationally at a perilous disadvantage in an increasingly competitive world. The thrust of technological interventions will be for the purpose of improving teaching-learning and evaluation processes, supporting teacher preparation and professional development,enhancing educational access, and streamlining educational planning, management, and administration including processes related to admission, attendance, assessment, etc. In the year 2014, when

the present government came into power, it had launched the 'Digital India' programme with the vision to transform India into a digitally empowered society and knowledge-based economy by ensuring digital access, digital inclusion, digital empowerment and bridging the digital divide. This was the genesis of digitalization of every institution/ sector / services and various departments of our country. Education sector of India was transformed a great deal within the premises of digital India to ensure easy access to education for all the people of the country.

In a report on digital education our prime minister Shri Narendra Modi ji stated that we are constantly working towards educational reforms aimed at making India a global knowledge super power. Over the last few years , digital technology has played a pivotal role in helping transform the education sector and its positive impact is being felt by students, teachers and parents alike. Apart from that he also advocated that we are focused to ensure education for all that is qualitative .More than expanding Education, our emphasis is on learning.The innovative ways of learning will inspire our young students and instill in them indomitable spirit,strong character and strength of mind to continue moving with learning against all odds.(India Report Digital Education, 2020 furthermore, the present article described the digital initiatives in Education and their justification that has led to ensure the theme of education for all.

Digital Initiative in Education from Primary to Higher Education before NEP-2020

Digitalization of Education refers to the process of a paradigm shift in our education system that advocates the introduction of e-content,e-learning,e-administration,technology and ICT based teaching-learning as well as massive use of online teaching and training that led to the better learning conditions and ensure access meaningful & mass learning and help us to attain educational objectives in terms of education for all. Digital initiatives taken by the present government have revolutionized the Education sector. Initiatives like online exams, development of various educational portals like Swayam e-pg portal,e-vidwan,e-yantra e-Kalpa,e-Vidya dan DIKSHA portal, NISTHA,Sugamya Pustakalaya and National Digital Library (NDL).During the Covid-19 pandemic we have been forced to use technology based or online virtual based education.

All these initiatives were revolutionized and exploited in a sound manner during the global pandemic covid-19. This pandemic has forced us to use virtual technology in education to make the teaching learning process continue due to complete lockdown. During lockdown we were using online technology by force but now we are using it by choice with the sound benefits of its versatile potential ranging from primary to higher education.

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To address the challenge of remote learning, MHRD has undertaken several initiatives to assist students, scholars, teachers and lifelong learners in their pursuit of education. These initiatives cover educational requirements, ranging from learners in schools to postgraduates. A summary of these initiatives is given below.

A comprehensive initiative called PM eVidya was announced on May 17, 2020, which aims to unify all efforts related to digital/online/on-air education to enable equitable multi-mode access to education. It is envisaged that it will benefit nearly 25 crore school going children across the country.

DIKSHA (Digital Infrastructure for Knowledge Sharing) The nation's digital infrastructure for providing quality e-content for school education in states/ UTs and QR coded Energized Textbooks for all grades (one nation, one digital platform). Till date (21.07.2022) DIKSHA has more than 501 crores learning sessions, more than 5,879 crore learning minutes and more than 3,825 crores page hits with more than 4.06 crore average daily page hits. A total of 2,92,178 pieces of e-contents are live on DIKSHA as on date (Digital Education tools PIB Delhi, 2022)

- DIKSHA can be accessed through a web-portal and mobile application. DIKSHA provides access to a large number of curriculum linked e-content through several use cases and solutions such as QR coded Energized Textbooks (ETBs), courses for teachers, quizzes and others.
- As part of PM eVidya announced under the Atma Nirbhar Bharat programme, DIKSHA is the 'one nation; one digital platform' for school education in India. DIKSHA is being transformed into a platform for diverse and rich curriculum linked e-content requirements of learners and teachers for all states/UTs accessible across digital devices (laptop/mobile/ desktop/tablets, TV and radio) in order to have coherence of access and learning experience.
- At the same time, DIKSHA is designed to inherently support states/UTs to exercise autonomy, independence and choice to craft and run learning programs to suit their needs and achieve their goals, by using solutions, tools and data on the platform.
- In April, 2020 Vidya Daan was launched as a national content contribution program that leverages the DIKSHA platform and tools to seek and allow contribution/donation of e-learning resources for school education by educational bodies, private bodies, and individual experts. Further details of DIKSHA are provided later in this report.

SWAYAM (Study Webs of Active Learning for Young Aspiring Minds)- It is a programme initiated by the Government of India in the year 2017 and designed to achieve the three cardinal principles of Education Policy viz., access, equity and quality. The objective of this effort is to take the best teaching learning resources to all, including the most disadvantaged. SWAYAM seeks to bridge the digital divide for students who have hitherto remained untouched by the digital revolution and have not been able to join the mainstream of the knowledge economy. Swayam is a platform that facilitates hosting of all the courses, taught in classrooms from Class 9 till post-graduation to be accessed by anyone, anywhere at any time. All the courses are interactive, prepared by the best teachers in the country and are available, free of cost to any learner. The courses hosted on SWAYAM are in 4 quadrants – (1) video lecture, (2) specially prepared reading material that can be downloaded/printed (3) self-assessment tests through tests and quizzes and (4) an online discussion forum for clearing the doubts. Steps have been taken to enrich the learning experience by using audio-video and multimedia and state of the art pedagogy / technology.This covers all higher education subjects and skill sector courses.

- The objective is to ensure that every student in the country has access to the best quality higher education at the affordable cost.
- Academicians from hundreds of institutions throughout the country are involved in developing & delivering Massive open online courses (MOOCs) through SWAYAM in almost all disciplines from senior schooling to Post Graduation.
- A total of 89,55,857 unique users and 2,83,21,959 enrollment are there on SWAYAM Portal from all over the country in various courses till July 2022.(Digital Education tools PIB Delhi, 2022)

SWAYAM Prabha-Swayam Prabha was inaugurated on 07 July, 2017. Swayam Prabha is a group of DTH channels devoted to telecasting quality educational programmes 24 hours a day, 7 days a week. It operates using the GSAT-15 satellite. Swayam Prabha DTH channels are meant to support and reach those who do not have access to the internet. 32 channels are devoted to telecast high quality educational programmes by the MHRD. Channels are earmarked for school education and higher education separately. Provision is made for telecast of live interactive sessions on these channels with experts from home through Skype. The Department of School Education and Literacy also tied up with private DTH operators like Tata Sky & Airtel to air educational video content to enhance the reach of these channels. Coordination with States of India has been undertaken

to share air time (4 hrs daily) of the 5 existing SWAYAM PRABHA channels to telecast their education related contents.

- It is an initiative of the Ministry of Human Resources Development to provide 32 High Quality Educational Channels through DTH across the length and breadth of the country on a 24X7 basis.
- It has curriculum-based course content covering diverse disciplines.
- One earmarked Swayam Prabha TV channel per class from 1 to 12 (one class, one channel): The same content is simulcast through YouTube and Jio channels. Till date 31,816 calls were received to enquire about telecast of educational programmes through PM eVIDYA IVRS have been responded.
- Extensive use of Radio, Community radio and CBSE Podcast- Shiksha Vani: 3,529 pieces of curriculum-based radio programmes (Classes 1 -12) for its dissemination/ broadcast on 397 Radio Stations (11 GyanVani FM Radio Stations, 254 Community Radio Stations), 132 All India Radio stations, Podcasts on iRadio and JioSaavn Mobile apps. Till now 1,425 live programs have been broadcast on iRadio.
- Special e-content for visually and hearing impaired developed on Digitally Accessible Information System (DAISY) and in sign language on NIOS website/ YouTube: In all 3,520 textbook based ISL videos recorded and 597 videos have been uploaded on DIKSHA from classes 1 to 5. A 10,000 words ISL dictionary has been uploaded on DIKSHA. 3,474 audio books chapters uploaded on DIKSHA.

On Air

Radio broadcasting is being used for children in remote areas who are not online (especially for grades 1 to 5). The broadcasts focus on activity-based-learning. 289 Community Radio Stations have also been used to broadcast content for NIOS for grades 9 to 12. A Podcast called Shiksha Vani of the Central Board for Secondary Education (CBSE) is being effectively used by learners of grades 9 to12. Shiksha Vani contains over 430 pieces of audio content for all subjects of grades 1 to 12

E-Text Book

The e-textbooks can be accessed using e-Pathshala web portal and mobile app (Android, iOS, Windows), by students, teachers, teacher educators and parents. More than 600 digital books including 377 e-textbooks (grades 1 to 12) and 3,500 pieces of audio and video content of NCERT are available in the public domain in various languages (Hindi, English, Sanskrit and Urdu).

NROER-National Repository of Open Educational Resources is an open storehouse of e-content for students, teachers, teacher educators and parents. Nearly 17,500 pieces of e-content of NCERT and other collaborative partners are available for all grades for various school subjects. E-content is also available on NCERT's official YouTube channel.

NISHTHA – National Initiative for School Heads' and Teachers' Holistic Advancement. The Department of School Education and Literacy has digitized its Integrated Teacher Training Programme called NISHTHA-online for elementary teachers was launched on 06th October, 2020 by NCERT on the DIKSHA platform and around 24 lakh teachers/school heads have been covered under this.

In 2021-22, NISHTHA online has been extended to Secondary level (NISHTHA 2.0) and Foundational Literacy and Numeracy (NISHTHA 3.0) for Secondary, Pre-primary & Primary respectively with a focus on improvement in the quality of teachers and learning outcomes of students. NCERT has developed a package including 12 Generic modules and 56 subject specific modules for NISHTHA 2.0 (Secondary Level) and 12 modules for foundational literacy and numeracy under NISHTHA 3.0 online on DIKSHA portal.

The National Digital Library of India (NDL)- Project has been entrusted to IIT Kharagpur to develop the overall framework of a facility that can provide a single window access to learners for e-contents/resources. The vision is to build NDL as a National Knowledge Asset that should become the key driving force for education, research, NDL integrates the existing digitized and digital contents across educational and cultural institutions / bodies, publishers, etc. to provide a single window of access to different groups of users ranging across the entire population. NDL fetches metadata ("data that provides information about other data") of the contents and stores and indexes these metadata in its servers so that all the e-contents can be searched and accessed in the fulltext by users through a single window. Currently, NDL has about 200 lakh of content items and about 45 lakh of registered users.

Free and Open Source Software for Education (FOSSEE)

FOSSEE is a project promoting the use of open-source software in educational institutions. It is developed by IIT, Bombay. It provides instructional material, such as spoken tutorials, documentation, such as textbook companions, and awareness programmes such as conferences, training workshops, and Internships.About 2,000 college students and teachers have partaken in this activity

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& close to 1,000 TBCs (textbook companions) have been devised in Scilab and made it open for free download of various software.

Virtual Lab

This Project is to design fully interactive labs with simulated environments to perform experiments, collect data, and answer questions to evaluate the understanding of the knowledge acquired in order to achieve the objectives of modern education. There are about 225 such labs. It is essential to develop virtual laboratories with state-of-the-art computer simulation technology to create real-world environments and problem-handling capabilities.

Shodhganga

Shodhganga is an open-access ETD (Electronic theses depository) of Indian theses and dissertations. It helps to avoid duplication of research. Some important facts about shodhganga are: It is a digital repository of theses and dissertations submitted to universities in India. There is collection of 3880+ theses and dissertations 70 universities are tied together and 62 universities are the contributors. Submission of PhD theses is mandated via UGC vide Gazette Notification (Minimum Standards & Procedures for the award of M.Phil/ PhD Degree, regulation, 2009)

Shodhgangotri

ShodhGangotri is an initiative for research scholars/research supervisors in universities where they can deposit an electronic version of approved synopsis provided by research scholars to the universities for registering themselves for the PhD programme. This repository reveals the trends and directions of research being conducted in Indian universities. Moreover, it avoids duplication of research.

E- Shodhsindhu

The e-ShodhSindhu initiative provides more than 15,000 international electronic journals and e-books to all higher educational institutions. This allows access to the user towards the best educational resources in the world via digital mode. This scheme has been implemented by INFLIBNET, Gandhinagar, Gujarat.

National Education Policy (2020) lays great emphasis on the use of educational technology to enhance the access of educational opportunities, improve the quality of education, address concerns of inclusion and diversity and improve access, quality, equity, affordability and accountability of the educational system in the country. Thus, meticulous use of educational technology and information and communication technologies (ICTs) can liberate the system and help achieve quality education in school and teacher education in the country. (Kumar, 2020)

Recommendations of NEP-2020 for Online and Digital Education: Ensuring Equitable Use of Technology

Given the pace and depth of technological developments worldwide, NEP 2020 calls for addressing the broader consequences of disruptive technologies that are relevant to education. These include research, de-skilling and awareness raising to enable our education system to cope with the rapid and disruptive changes that places us individually and nationally at a perilous disadvantage in an increasingly competitive world.

- The thrust of technological interventions will be for the purpose of improving teaching-learning and evaluation processes, supporting teacher preparation and professional development, enhancing educational access, and streamlining educational planning, management, and administration including processes related to admission, attendance, assessment, etc.
- To achieve these objectives, NEP 2020 envisions creating an autonomous body, the National Educational Technology Forum (NETF), which will be the vehicle for integrating technology into different aspects of school education and higher education.

  The NETF will have the following functions:

i) To provide independent evidence-based advice to Central and State Government agencies on technology-based interventions;
ii) To build intellectual and institutional capacities in educational technology;/
iii) Envision strategic thrust areas in this domain, and
iv) Articulate new directions for research and innovation. It also talks about strengthening CIET to promote and expand DIKSHA as well as other educational technology initiatives.

- National Education Policy 2020 recognizes the importance of leveraging the advantages of technology while acknowledging its potential risks and dangers. It calls for carefully designed and appropriately scaled pilot studies to determine how the benefits of online/digital education can be reaped while addressing or mitigating the downsides. In the meantime, the existing digital platforms and ongoing ICT-based educational initiatives must be optimized and expanded to meet the current and future challenges in providing quality education for all. (NEP Para 24.1)
- However, the benefits of online/digital education cannot be leveraged unless the digital divide is eliminated through concerted efforts, such as the Digital India campaign and the availability of affordable computing devices. It is

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important that the use of technology for online and digital education adequately addresses concerns of equity. (NEP Para 24.2)

- Teachers require suitable training and development to be effective online educators. It cannot be assumed that a good teacher in a traditional classroom will automatically be a good teacher in an online classroom. Aside from changes required in pedagogy, online assessments also require a different approach.
- Further, unless online education is blended with experiential and activity-based learning, it will tend to become a screen-based education with limited focus on the social, affective and psychomotor dimensions of learning. (NEP para 24.3)

Given the emergence of digital technologies and the emerging importance of leveraging technology for teaching-learning at all levels from school to higher education, this Policy recommends the following key initiatives:

(a) Pilot studies for online education: Appropriate agencies, such as the NETF, CIET, NIOS, IGNOU, IITs, NITs, etc. will be identified to conduct a series of pilot studies, in parallel, to evaluate the benefits of integrating education with online education while mitigating the downsides and also to study related areas, such as, student device addiction, most preferred formats of e-content, etc. The results of these pilot studies will be publicly communicated and used for continuous improvement.

(b) Digital infrastructure: There is a need to invest in creation of open, interoperable, evolvable, public digital infrastructure in the education sector that can be used by multiple platforms and point solutions, to solve India's scale, diversity, complexity and device penetration. This will ensure that the technology-based solutions do not become outdated with the rapid advances in technology.

(c) Online teaching platform and tools: Appropriate existing e-learning platforms such as SWAYAM, DIKSHA, will be extended to provide teachers with a structured, user-friendly, rich set of assistive tools for monitoring progress of learners. Tools, such as, two-way video and two-way-audio interface for holding online classes are a real necessity as the present pandemic has shown.

(d) Content creation, digital repository, and dissemination: A digital repository of content including creation of coursework, Learning Games & Simulations, Augmented Reality and Virtual Reality will be developed, with a clear public system for ratings by users on effectiveness and quality. For

fun based learning student-appropriate tools like apps, gamification of Indian art and culture, in multiple languages, with clear operating instructions, will also be created. A reliable backup mechanism for disseminating e-content to students will be provided.

(e) Addressing the digital divide: Given the fact that there still persists a substantial section of the population whose digital access is highly limited, the existing mass media, such as television, radio, and community radio will be extensively used for telecast and broadcasts. Such educational 238 programmes will be made available 24/7 in different languages to cater to the varying needs of the student population. A special focus on content in all Indian languages will be emphasized and required; digital content will need to reach the teachers and students in their medium of instruction as far as possible.

(f) Virtual Labs: Existing e-learning platforms such as DIKSHA, SWAYAM and SWAYAMPRABHA will also be leveraged for creating virtual labs so that all students have equal access to quality practical and hands-on experiment based learning experiences. The possibility of providing adequate access to SEDG students and teachers through suitable digital devices, such as tablets with preloaded content, will be considered and developed.

(g) Training and incentives for teachers: Teachers will undergo rigorous training in learner-centric pedagogy and on how to become high-quality online content creators themselves using online teaching platforms and tools. There will be emphasis on the teacher's role in facilitating active student engagement with the content and with each other.

(h) Online assessment and examinations: Appropriate bodies, such as the proposed National Assessment Centre or PARAKH, School Boards, NTA, and other identified bodies will design and implement assessment frameworks encompassing design of competencies, portfolio, rubrics, standardized assessments, and assessment analytics. Studies will be undertaken to pilot new ways of assessment using education technologies focusing on 21st century skills.

(i) Blended models of learning: While promoting digital learning and education, the importance of face-to-face in-person learning is fully recognized. Accordingly, different effective models of blended learning will be identified for appropriate replication for different subjects.

(j) Laying down standards: As research on online/digital education emerges, NETF and other appropriate bodies shall set up standards of content, technology, and pedagogy for online/digital teaching-learning. These

standards will help to formulate guidelines for e-learning by States, Boards, schools and school complexes, HEIs, etc. (NEP para 24.4)

Digitalization of Education : A Step towards Education for All & Just Equitable Society

With a mandate to deploy affordable technology to enhance the educational opportunities for all, to augment the quality of education and to bring equity into the educational system in the country and keeping in view the recommendations of NEP-2020, Ministry of Education through CIET, NCERT has been working tirelessly and meticulously in designing, developing and disseminating a large number of eBooks, eContent - audios, videos, interactives, augmented reality contents, Indian Sign Language (ISL) videos, audiobooks, talking books, etc.; a variety of eCourses for school and teacher education; organizing digital events like online quizzes primarily for students and teachers through leveraging Online/Offline, On-Air technology One Class-One Channel, DIKSHA, ePathshala, NISHTHA, school MOOCs on SWAYAM, etc.

In the present time, A total of 89,55,857 unique users and 2,83,21,959 enrollment are there on SWAYAM Portal from all over the country in various courses till July 2022.Extensive use of Radio, Community radio and CBSE Podcast- Shiksha Vani: 3,529 pieces of curriculum-based radio programmes (Classes 1 -12) for its dissemination/ broadcast on 397 Radio Stations (11 GyanVani FM Radio Stations, 254 Community Radio Stations), 132 All India Radio stations, Podcasts on iRadio and JioSaavn Mobile apps.

Apart from that 1,425 live programs have been broadcast on iRadio. Special e-content for visually and hearing impaired developed on Digitally Accessible Information System (DAISY) and in sign language on NIOS website/ YouTube: In all 3,520 textbook based ISL videos recorded and 597 videos have been uploaded on DIKSHA from classes 1 to 5. A 10,000 words ISL dictionary has been uploaded on DIKSHA. 3,474 audio books chapters uploaded on DIKSHA.(Digital Education tools PIB Delhi, 2022). All these steps are definitely helping to attain the goals of education for all. In the same way, to enhance Gross Enrolment Ratio (GER), online teaching and learning is one of the options. Accordingly, UGC has notified Open Distance Learning (ODL) and Online Programmes Regulations, 2020 ; and UGC (Credit Framework for online Course through SWAYAM) Regulation 2021 which has broad-based the eligibility of HEIs to offer Online Courses, as well as enhanced the percentage of courses permitted towards credit from 20 % to 40% by using MOOCs SWAYAM. (Year End Review PIB, 2021).

The data issued by All India Survey on Higher Education-AISHER(2020-2021) has clearly portrayed the picture of access to education from the diverse group of the country. Enrollment in higher education increases to 4.14 crore, crossing the 4 crore mark for first time; increase of 7.5% from 2019-20 and 21% from 2014-15 .Female enrollment reaches 2 crore mark, increase of 13 Lakh from 2019-20.Significant increase of 28% in enrolment of SC students and 38% in enrolment of Female SC Students in 2020-21, compared to 2014-15.Substantial increase of 47% in enrolment of ST students and 63.4% increase in the enrolment of Female ST Students in 2020-21, compared to 2014-15.Significant increase of 32% in OBC Student enrolment and 39% in Female OBC Students, since 2014-15. Notable increase of 29% in Student Enrolment and 34% in Female Student Enrolment in the North Eastern Region in 2020-21 since 2014-15.Gross Enrolment Ratio (GER) has improved from previous year for all social groups.Enrollment in Distance Education has increased by 7% in 2020-21 from 2019-20.Number of Universities has increased by 70, number of Colleges has increased by 1,453, in 2020-21 over 2019-20.Gender Parity Index (GPI) has increased from 1 in 2017-18 to 1.05 in 2020-21. (AISHER,2023).

All these significant increments in enrollment of students including deprived sections of the society in education rationalize the active involvement and sound execution of digital Education within the umbrella of Digital India campaign launched in the year 2015. During the Covid-19 pandemic to assess the efficiency of online learning, the Ministry of Education through National Council of Educational Research and Training (NCERT) had conducted a survey related to online teaching learning in Kendriya Vidyalaya Sangathan (KVS), Navodaya Vidyalaya Samiti (NVS) and Central Board of Secondary Education (CBSE) schools. As per the survey, the findings revealed that about 60-70% of the participants (students, teachers, parents and school principals across KVS, NVS and CBSE shared that teaching and learning during COVID-19 period was joyful and satisfactory. About 20-30% stakeholders shared that they had a difficult experience and about 10-20% said that it was burdensome for them. (Digital education tools PIB, 2022). Thus , It can be said that digital intervention has proved a boon for all parts of the country to access education and realize the dreams of education for all specially people living ends of the society to make just equitable society ultimately leading to inclusive development.

Digital gap or digital divides followed by lack of digital infrastructure have been identified as the biggest hurdle and challenge during digitalization of education or online learning. During the pandemic it has been endeavored to overcome this by broadcasting educational syllabus for all grades on DTH channels using SWAYAM

PRABHA. PIB Delhi on Digital education tool (2022) advocated that One earmarked Swayam Prabha TV channel per class from 1 to 12 (one class, one channel): The same content is simulcast through YouTube and Jio channels. Till date 31,816calls were received to enquire about telecast of educational programmes through PM eVIDYA IVRS have been responded.

In this reference to address the digital divide NEP implementation document SARTHQ advocated that CIET/NCERT/SCERTs will ensure that e-learning resources for preschool to grades 12 are made available centrally, as well as by states/UTs in local languages. This content will be prepared with the central idea of focusing on competencies and the attainment of outcomes of learning. Therefore, DIKSHA will contain e-resources under six component categories to begin with. These categories will be expanded and diversified as per need. In the backdrop of the pandemic, it is essential that states/UTs ensure that e-content for learners is uploaded on DIKSHA by them as soon as possible, but not later than 21-22 academic session. For ensuring equity in educational technology, it will be ensured that the same e-contents are available across all digital modes (portals, Apps, TV, radio) for the same topic/s under the Coherence policy of DoSEL. For this, concerted efforts will be made by all states/UTs in consultation with NCERT through DIKSHA. States/UTs will prepare strict action plans for achieving this not later than 2021-22 academic session. Apart from that rapid expansion of internet connectivity along with 5G technology will reduce the challenges of digital education with aim to ensure access, equity and quality education for all to prime inclusive society.

Conclusion

In conclusion, it may be pointed out that digitalization has helped to distribute education faster, more effectively and at a lower cost, but the obstacles to its future delivery are unspecified and somewhat uncertain. In India, characterized by multifarious diversity and constraints in terms of availability of resources (ICT infrastructure, electricity, budget, skilled human resource), switching over to digital modes of education is a humongous task, as well as full of challenges.

NEP recommendation about National Digital Education Architecture with a vision to create a unified national digital infrastructure to energize and catalyze the education ecosystem aims to enable existing systems to upgrade and become interoperable, while making available the common building blocks and services for the creation of new tools and solutions. It will help to overcome the challenges of digital education in near future and realization of NEP goals.

Thus it can be concluded that despite of such challenges in the digitalization of education, we are at average level in the genesis part but proper digital infrastructure along with active commitment by adopting suggestions and recommendations of NEP-2020 aim of digital education may be realized with in the vision of digital India leading to knowledge based economy leading to clinch various educational, political and global positions to make India proud again as a *Viswa Guru* with the vision of *Vasudhaiva Kutumbakam*.

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Digital Empowerment and Digitalization of Education

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Abstract

Knowledge is power in the contemporary world. The key to getting knowledge is education. Digitalization, the new, emergent business method, might revolutionise India's society and knowledge economy.

Understanding the fundamentals of the internet, which links everything and everyone online, strives to empower Indian residents. One fundamental component of a digital campaign is the promotion of digital literacy, which gives young Indians more influence. The primary drivers of instilling digital literacy among young Indians are teachers. A teacher must master new technology in line with educating kids about it so that they may become digitally empowered.

A progressive and long-lasting vision for learning and teaching in the digital age is what a vision for learning and teaching in the digital age tries to create. It claims that in order to empower students through digital learning, teachers must possess four skills: creativity, and innovation, critical thinking, communication and collaboration. Additionally, believes that via digital education, pupils are prepared to participate in the accelerating globalisation and technological transformation.

The digitization of the education industry is the newest trend in this subject. With projects like digital classrooms, digital boards, and other initiatives at the school level, as well as initiatives like SWAYAM and MOOCs at the university level, India aims to digitalize education at both the secondary and tertiary levels. Access to education may be greatly increased by digitising schooling. However, it is important to approach this digitization with caution; specifically, it is important to consider both the positive and negative effects that new technologies have on student learning. For instance, it might exacerbate the exclusion of children from poor families from education who cannot afford digital devices like laptops, computers, etc. Furthermore, digitalization and unrestricted access to the internet can cause a whole

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host of new issues like cyber-bullying and cyber-stalking. Because there are benefits and drawbacks to the digitalization of education, this article makes the case that it is crucial to carefully plan how to integrate technology into the education system.
Keywords

Digital empowerment, e-learning, internet, digitalization, technology, Google, Digital India.

Introduction

The word "digitalization" is the one that is most in vogue right now. The electronic age started more than a century ago. The era of digitization in which we live has simplified our lives. Every aspect of life and the globe is being impacted by technology. The latest trend is online. The Google guru is progressively replacing the Indian Guru-Shishya parampare (tradition). Our society has benefited from and suffered from digitalization. Information that has been digitalized has been arranged into bits and is stored in a digital manner. The conventional labour of humans is now simple thanks to digitalization. Information and communication technology (ICT) applications have grown in scope in schools, colleges, universities, and research centres, moving beyond the simple Student Information System (SIS) to include Value Management Systems (VMS) and knowledge management systems. For educators who value innovation and change as much as students, Digitalization brings about motivated learning and actions, boosting productivity and results. The value of the online education market in India exceeds USD 40 billion. With more than 1, 55,000 students from the nation, India is said to have the second-highest number of online course enrolments, after the United States. One of the keystones of the Indian Prime Minister's "Digital India" agenda is having one technologically literate member every home. With only a mouse click, India will become a fully linked information economy with access to top-notch services according to the Digital India vision. By transforming every inhabitant of rural India into a fully digitally educated netizen, this goal seeks to transform lives there (http://www.ictacademy.in). One idea to alter India's educational system is called "Digital India." It is a programme designed to close the gap in literacy. The world in which children are growing up differs greatly from that of their parents. In daily life, people use computers, Face book, YouTube, Netflix, and cell phones. Toys have gone computerized, with many of them being programmable. Complete digitization comes to mind when we discuss "Digital India." Ensuring that students be digitally enabled has become a primary priority for educational

Institutions and the government as the world grows increasingly reliant on science and technology. The capacity to use web-based resources effectively and ethically to promote learning, critical thinking, and creativity is referred to as digital empowerment.

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Digital Education Uptake in India

Previously, the availability of education via digital platforms was restricted to a small number of educational institutions and had little public awareness. However, digital platforms emerged as a major educational tool during COVID-19. Even though everyone was unfamiliar with the digital education system, instructors and students seldom ever used it. But, individuals were aware of the value of the digital education system during the COVID-19 epidemic, which enabled them to carry on with their online teaching and learning. The flexible structure of the digital education system, its lack of time limits, its wider coverage and ease of accessible, among other features, all contribute to its greater adaptability. After the digital revolution, schools are also implementing this system for teaching and learning. Previously, the digital education system was mainly utilized for research and higher education. These days, a lot of the assignments and project work that schools provide is dependent on digital platforms; these tasks cannot be finished without the use of these platforms. The number of students enrolled in open courses has increased from limited to infinite due to platforms such as MOOCs, NPTEL, and SWAYAM. The teaching-learning process has evolved as a result of this shifting trend in educational technology, and today the majority of prestigious universities and colleges are using online instructions.

Obstacles and Possibilities

In India, the expense of education, particularly higher education, is rising daily and is out of reach for half of the people. In addition, parents pay extremely high fees to private institutions, which also need capitation payments in order to admit pupils. Affluent individuals can readily afford these fees, while middle-class and lower-class individuals have difficulty making the required payments due to several obstacles. Thus, digital education may address several issues either directly or indirectly in a number of ways. The majority of tasks will be done digitally in the future, and since everyone will be tech-savvy and technologically literate, there shouldn't be any issues. In the past, individuals had to work hard to support themselves financially, but thanks to digital job management, people today work less and make more. Zomato, Uber, Ola, and Several more applications that make our life easier and increase our income are just a few examples.

After promoting the digital education system, the following significant issues may be fixed

Sr. No.	Problems	Solution after digitalization
1.	Problems with admission and enrolment in higher education	A large number of pupils are denied admittance because there aren't enough seats. Digital learning platforms provide the opportunity to enrol in any course, anywhere in the globe.
2.	Inadequate teaching standards	Many educators fail to provide instruction that meets students' expectations. Because everything would be recorded, the digital education system will compel them to educate with seriousness. Students can use digital education platforms to access high-quality content from subject matter experts.
3.	Reservation trouble	Many students accuse one another of not having seats because of reservations. This gives rise to a bad mentality inside a specific community. Digital learning environments provide everyone the same chances.
4.	Pupils' deficient learning	Many students learn slowly, but they may concentrate more on their studies if the materials are available.
5.	Difficulty with monitoring	Because the study materials for both instructors and students may be appropriately assessed, keeping an eye on their academic progress will be simpler.
6.	The issues of high fees and stay expenses	For the majority of Indians, the cost of education is a key worry, yet digital learning platforms offer high-quality education at a lower cost.
7.	Traffic and transport issues	Traffic becomes a major issue when schools and colleges open and close, although it is manageable.
8.	Infrastructural issues	In colleges and universities, infrastructure is a major issue, but this won't persist with digital education.
9	Issues in managing time effectively	Time management is an issue that occasionally affects both instructors and students, but it won't be an issue if Digital education is used.
10.	Education by choice problem	Students don't always receive the subjects they want. This issue will be resolved as well.

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Ministry of Education's Digital Empowerment

- Online education and digital empowerment are key elements in achieving NEP-2020's goal of a 50% GER by 2035. For today's learners, digital empowerment in education offers a myriad of alternatives. The impact of digital innovations on higher education is extensive. Emerging fields including robotics, machine learning, artificial intelligence, and virtual reality have had a significant influence on institutions and other stakeholders in addition to providing a wealth of prospects. A well-thought-out and efficient use of these advancements may assist our HEIs in meeting international standards of quality and producing graduates who are both internationally and locally competent. All 46 Central institutions are now implementing Enterprise Resource Planning (ERP)-based and technology-enabled solutions for HEIs-SAMARTH governance. Many students who are dispersed geographically around the globe can pursue higher education thanks to online learning; but, in order to maintain standards, stringent quality control procedures must be in place. To maintain learners' interest in synchronous and asynchronous communication and to deliver high-quality learning experiences, interactive e-material must be developed:
- Regulation on credit framework through SWAYAM – 40 per cent online credits acceptable now against 20 per cent earlier,
- MOOCs in Indian languages,
- Translation Automation (1000 courses in more than one language), and
- 1st (22 Subjects) and 2nd year (88 Subjects) Technical Course Textbooks in 10 Indian Languages.

According to the NEP-2020, digitization may be extremely helpful in bringing fresh, cutting-edge approaches to supporting educators, learners, and the educational process. In order to address the present and upcoming issues in higher education, it suggests optimizing already-existing digital platforms as well as continuing ICT-based educational efforts. The administration and management of institutions have also been significantly influenced by digital technology. Using digital resources, the group explored ideas for improving learning possibilities for a larger audience at a reasonable cost, with a focus on lifelong learning.

India has Made Significant Contributions to the Worldwide Trend of Digitization of the Education Sector

Nowadays, educational systems are continuously evolving in their aspects. Previously, the primary medium of teaching and learning was a traditional school

system. However, various internet issues prompted the development of a new teaching mode. Initially, the private educational mode was developed for some of the people who were unable to enroll in regular classroom-based education due to lower marks, employment, Fee Structure, Geographical conditions, and working conditions, schedule universities are allowed to run private education mode, where students appear examination for the degree based on his/her own preparation. This method of instruction is known as cloud campus, distance education, or e-learning. Computers and the internet are essential to online and distant learning. These days, a variety of computer tools, strategies, and procedures are completely dependent on the class, reference materials, library, group discussions, counselling, and other activities. In many respects, cloud computing is a crucial technological advancement that supports effective online and remote learning. Students may never visit the campus bookstore these days because they may purchase books online. The library no longer has card catalogues, and modern research instruments are more effective and focused. Computer labs and tutoring centers are frequently located in college libraries these days.

Educomp, a leader in integrating digital education into Indian classrooms, has revolutionized traditional teaching methods with its outstanding advancements in the digital sphere. Educomp is proud of its history of providing schools with the newest technologically based solutions. Being a pioneer in several educational products, Educomp's smart class is now a household name and is frequently associated with digital classrooms. With its outstanding achievements in the area of using digital content in the classroom, Educomp Smart class is credited with bringing about a fundamental transformation in the conventional methods of teaching. With Educomp's 3D Lab, science in the senior grades may now be even more engaging with atoms exploding at arm's length. When it comes to using rich multimedia material in Indian classrooms as a teaching tool, Educomp smart class is the industry pioneer. This cutting-edge in-class technology makes use of a sizable digital resource store that covers almost every topic from kindergarten to grade 12. Extensive testing has approved Educomp smart class.

League INDIA aims to establish a broad network of cutting-edge educational institutions that are renowned and esteemed for their unique approaches and implementation of well studied best practices, all of which are shared by League INDIA's member institutions. com Through the teaching and learning platform UniClass, users may access an extensive library of rich multimedia content that is curriculum-mapped. Nursery through Grade 12 can take UniClass. The UniClass gadget resembles a set-top box and is compatible with any type of display equipment,

including a projector and television. Students may study in an intriguing and engaging way thanks to it. Educomp is simple to set up and manage. For customers who can afford their content collection and schools on a tight budget, UniClass is an easy and affordable solution.

Impact on Public and Private Schools in Urban Areas

As with any other industry the field of education saw several changes as a result of globalization and the information and communication technology revolution. With the introduction of 3D presentations and video conferences with subject matter experts, Pearsons and Educomp brought a fresh perspective to the classroom. With video conferencing technology, educators may bring prominent officials and leaders in education into the classroom. It's as if the pupils are in the same room as folks they would probably never get to meet otherwise. Students and instructors participate in active online conversations on given Themes and questions, generally centred on current events, in between in-person class meets. Every student in the class participates in the conversations and exchanges with other students and the teachers. The lecture hall of the 1960s and 1970s is practically nonexistent in this new setting, where students in the back row may never have raised a question or been called upon, and where inflexible seating made it nearly difficult for students to connect with one another.

In between in-person meetings these days, we occasionally arrange virtual classes with guest presenters that the students may view and engage with. It is possible to record these sessions and provide links to them on course learning.

Impact on Surpassing Academicians

The educational technologies of today have all but mandated increased interaction between students and instructors. It is assisting teachers in concentrating more on the classroom setting for their pupils. However, it has also altered how colleges conduct business. The Indian education regulatory framework restricts the use of digital learning. Faculty members are rushing to finish the syllabus, students are anxious about their marks and limit their activities to what is required of them, and the management wants to ensure that the institution remains at the top. In India, an online degree or course is still not accepted. Another significant issue with online education in India is that students are not adequately developed in terms of soft skills and personality development, which makes them less desirable in the labour market. Tier-one universities like the Indian Institute of Technologies (IIT), Birla Institute of Technological Sciences, and National Institute of Technologies provide extremely high-quality higher education. In both rural and urban locations, tier-3

schools and colleges do not retain the same standard of instruction. Because of this, IIT launched the government-funded National Programme on Technology Enhanced Learning (NPTEL) to assist students worldwide in learning ideas by giving them free access to YouTube videos. "Lecturers record their lectures and make them available online for the benefit of both urban and rural students." Students may obtain high-quality instructional films for free in this fashion, according to an assistant professor at the Indian Institute of Technology (IIT), Madras. Digital technologies are being employed at a small number of institutions in India, although they are still not in many others. Furthermore, there are other explanations for why digital teaching methods are used erratically. The primary issue is a lack of funding. As a result, some universities are able to digitalize their instruction while others are unable to; still, the majority of conventional universities continue to use traditional teaching techniques.

Conclusion

It is not clear that technology advocates have gone far enough. Getting individual teachers to use any technology will not transform education. The curriculum, the workload, and the regulating bodies lock down individual teachers. The ratio of time spent to deeper learning must constantly be balanced. Technology should facilitate effective collaboration and interaction for learning: When computer and digital technologies facilitate collaboration and interaction, especially when learners or teachers use them to facilitate discussion, interaction, and feedback, the use of these tools is typically more productive**.** Supporting educators and/or students as they grow in their usage of digital technology will help to guarantee that learning is enhanced. When it is available, training for educators (and students) often concentrates on technological proficiency with the tools. Usually, this is insufficient to help educators and students make the most of technology for learning. It's probably going to take ongoing professional development and assistance to assess the effect on learning**.** The use of digital technology is typically more beneficial as a complement rather than as a replacement for regular instruction. Technology is not brought into a vacuum. It is crucial to clearly define what it will replace and how the technological activities will add to what students would typically study. Employers' attitudes must also change in order for online education to succeed in India, as it hasn't yet won their support. These changes must be made to the entire education system. We still have a long way to go before we can declare with pride that degrees and certificates are merely pieces of paper in our eyes—we appreciate a person's expertise.

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Decoding the Future of Digital Education in India

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Abstract

Imagining & shaping digital education as a long-term learning strategy towards ensuring "New Age Learning" is critical to our journey which will help us leapfrog. We can leapfrog in education when we unleash the potential of a billion.

Indians - to learn and to help each other learn. Education is about learning, and learning should not just be restricted to schools. It should be learning by all, learning for all, learning with all. Overall, Indian education is being readied to adapt to a framework for enhancing learning within as well as outside the classroom. The foundation and focus of this research paper will be the Online/Digital Education Guidelines and Standards which will address the digital divide, enabling equitable learning.The Government of India is committed to ensuring learning for all, with equity, to cover all students at all levels of education and in all geographical locations, even in the remotest parts of the country so that the conveniences of accessing any service through the click of a button is no longer the luxury of the rich alone.

To keep the students engaged with the learning process during the COVID health crisis and keeping the futuristic goal of digital learning into consideration, many exemplary initiatives both Online and Offline have been undertaken at the root level to ensure that the learning happens even in the digital divide with almost negligible requirements of the internet.

The present research paper throws light on the current situation of digital education in the light of National Education Policy (NEP) 2020, and the opportunities and challenges that lie ahead in scope for improvement of digital education for all, in the contemporary scenario.

Keywords

Education, Digital Education, Online, Internet, Technology, National Education Policy 2020.

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Introduction

"Education is the most powerful weapon which you can use to change the world."

—Nelson Mandela.

Education is the most powerful tool for change. No matter what you're fighting for, leading with a sharp mind can create more positive change than running toward challenges with a sharp sword. Education is one of the most important factors that shapes and affects the personality of an individual. To deprive a person of education is like turning off all sources of light. The world leaders realized the importance of education and declared right to education as a fundamental right under the Constitution of India as well as human right in international perspective. Education is a tool greater than any other weapon that may be invented by mankind. For a person who is educated can convince, convey, and change the present and future of every individual.

Social development and egalitarian democratic processes are mutually influenced by the appropriate and dynamic changes in the educational system that people want to adopt over a period depending upon how adoptive cultural expectations grow. Changes and paradigm shift in the knowledge gaining process and policies that govern the same are invariability dictated alongside the representative democratic will and solidarity of economic growth and development. Probably the meaningful and sustainable economic development is the precondition for the evolution of a good educational system, and multidimensional facets of developing a fair and equitable educational process also require a strong economic base and considerable expenditure both by the public and private sectors. Education by itself is a qualitative phenomenon that has an enormous capacity to impact social, cultural, political, economic, and scientific aspects of human life. The consensus in economic science would suggest that education is a meritorious mixed commodity in which there is a spillover effect for society from individuals who have attained some level of education on various parameters of social development. It is a mixed commodity in the sense that education possesses the characteristics of both private and public good and, therefore, there are challenges in the creation and dissemination of knowledge. Individuals do not necessarily acquire knowledge from the formal educational system and traditional methods; informal training and experiences have been given considerable awareness and realization to promote individual and social welfare. Humans have learned hard lessons to gain the knowledge necessary for both survival and development. Hence, it is imperative to understand that knowledge

has not originated from the formal educational system. The formal educational system has conducted inquiry and investigation more scientifically to gain a very deeper understanding of the area and subjects of the social interests. This has culminated into a very large body of literature over a period on a cross-section of the subjects and today the formal educational system stands as indispensable social order and norm. The growth of educational institutions has multiplied many folds across the world in providing primary, secondary, and higher education. The democratic welfare government is not only interested in creating educational institutions as infrastructure for educating all but is also equally keen on quality-oriented, even-handed, and equitable education. India is not an exception to this rule, and, at the same time, educational realities are uniquely different from what is conceived in India as political, social, cultural, and economic constraints have played major roles in exclusion and alienation. The government's educational policies have been addressing these realities comprehensively and unequivocally to have inclusive education and reduced educational inequalities. The government of India, along with state governments, has evolved numerous policy measures and programs for building a strong educational system and most of the policies have addressed the issues of accessibility and equity. To mention a few, the policies of 1968, 1986, and 1992 have extensively dealt with equity and justice in promoting education to all. Creating a vibrant educational system that can deliver the social objectives across time and space is basically directed by the economic considerations, opportunities, the educational delivery mechanism, very well-trained educators, educational aids, technology, digitalization, etc. (For more elaborative discussion, one can refer to government policy documents particularly those of 1986 and 1992. Also, the annual report of the ministry of education, Government of India). Sustainable Development Goal IV (SDG 4) of the United Nations clearly emphasizes that the main aim of the educational system should be that of serving "Quality Education" and it has given a full understanding of the specific actions to be taken by all the nations by 2030 to "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all". In fact, the focus of the Global Agenda SDG 4 is to raise the standard of living and quality of life via ensuring quality and lifelong education irrespective of region, race, religion, color, caste, etc. Thus, there is a strong focus in India to reach global targets and more importantly, this is due to the necessity of fulfilling the government's goals on overhauling India's education system in the context of far-reaching changes that have taken place in terms of economic, social, and scientific areas over a period of last twenty years. The clear outcome of these complex issues and critical thinking across stakeholders of social development

manifested into a policy called the New Education Policy 2020. According to the NEP 2020, "The purpose of the education system is to develop a good human being capable of rational thought and action, possessing compassion and empathy, courage and resilience, scientific temper, and creative imagination, with sound ethical mooring and value. It aims at producing engaged, productive, and contributing citizens for building an equitable, inclusive, plural society as envisaged by our Constitution". This articulates the essence of various ingredients which are desired for the quality of life of individuals and social development.

Importance of Digital Education

The importance of digital online education has peaked since the outbreak of COVID-19 across the world. It has changed every facet of educational activities, putting human intelligence and machines into play. Although it was a necessity due to social distancing, people have adopted and accepted digital technology as they are the only option available to them. The experimentation is paving the way for the new addition of newer technologies and curriculum development to the need of the people. Innovation is a crucial force underlying the organizational and societal ability to survive and thrive in a crisis, especially in education. Through their research study, determines the possibilities and effects of mobile applications as support in foreign language learning (professional language) on bachelor studies as a part of engineering and technical and technological sciences curricula. The ever-existing tension between the costs and benefits of organizational innovation is accentuated in times of severe crisis, such as the COVID-19 pandemic. Many organizations and educational institutions struggle to maintain their operation in the turbulent environments caused by the pandemic, which forces them to be extremely cost-effective and consequently cut budgets for innovation. According to the Education for Sustainable Development (ESD) sourcebook published in 2012 by UNESCO, reorienting a curriculum to address sustainability can take place at the classroom or national level. At the classroom level, teachers can begin by explicitly asserting the link between the topics in the mandated syllabus and on sustainability. A national or state-level process would include inviting stakeholders to a public participation process to gather input (e.g., statements of needs and desires as well as opinions) related to the reorienting process. To reorient a curriculum to address sustainability, educational communities need to identify the knowledge, issues, perspectives, skills, and values central to sustainable development in each of the three components of sustainability—environment, society, and economy—and integrate them into the curriculum.

Integration of Technology in Education

India is a global leader in ICT and in other cutting-edge domains, such as space. Digital India Campaign is helping to transform the entire nation into a digitally empowered society and knowledge economy. Educational technology will play an important role in the improvement of educational processes and outcomes. The relationship between technology and education at all levels is bi-directional. Extensive use of technology in teaching and learning, removing language barriers, increasing access for Divyang students, and educational planning and management.

- Disruptive technology and Artificial Intelligence (AI) 3D/7D Virtual Reality - has emerged.
- Extensive research is needed in new technologies (involving artificial intelligence, machine learning, block chains, smart boards, handheld computing devices, adaptive computer testing and other forms of educational software and hardware).
- Before scaling up interventions, the use and integration of technology to improve multiple aspects of education should be rigorously and transparently evaluated in relevant background.
- Absorption of emerging technologies in imparting education like AI, robotics, 3D, simulation, and other upcoming technologies. Based on these technologies, the Ministry of Education can recommend the National Research Foundation to take up further research in incorporating these technological tools in disseminating education in India.
- Need to bridge the digital divide among the masses in India should be the prime concern of the government and efforts should be made to pro-actively overcome this roadblock.

Initiatives of the Ministry of Education in India by Using Technology Based Tools in Imparting Education

The Government of India is committed to ensuring learning for all, with equity, to cover all students at all levels of education and in all geographical locations, even in the remotest parts of the country so that the conveniences of accessing any service through the click of a button is no longer the luxury of the rich alone.

i) **PM e-Vidya**: A comprehensive initiative called PM e-Vidya is launched as a part of the Atma Nirbhar Bharat Programme, which unifies all efforts related to digital/online/on-air education to enable coherent multi-mode access to education.

https://doi.org/10.31995/rjpss.2023.v48iS.012

ii) DIKSHA is the nation's digital infrastructure for providing quality e-content for school education in states/UTs: and QR coded Energized Textbooks for all grades (one nation, one digital platform)

- Access through TV channels: One earmarked TV channel per class from 1 to 12 (One class, One channel)
- Extensive use of Radio, Community radio, and CBSE Podcast- Shiksha Vani
- Special e-content for visually and hearing impaired developed on Digitally Accessible Information System (DAISY) and in sign language on NIOS website/ YouTube

DIKSHA is the 'One nation: One digital platform' for school education in India. Digital Infrastructure for Knowledge Sharing (DIKSHA) portal and mobile app created by Ministry of Education is a storehouse of a large number of e-books and e-contents created by States/UTs and National level organizations. The e-textbooks of NCERT/ states and related e-Contents, mapped with QR Codes, are available on DIKSHA, which can be accessed at https://diksha.gov.in/ DIKSHA is being transformed into a platform for the coherence of access with TV and radio. DIKSHA is designed to inherently support states/UTs and other school boards to exercise autonomy, independence, and choice to craft and run learning programs to suit their needs and achieve their goals.

E-Content is available in 32 Indian languages on DIKSHA: Hindi, Malayalam, Marathi, Bhojpuri, Lepcha, Halbi, Tamil, Bodo, Konkani, Urdu, Sanskrit, Gujarati, Mythili, Sargujia, Kannada, Brij, Odia, Awadhi, Khaasi, Chhattisgarhi, Punjabi, Telugu, Gondi-Dantewada, Gondi-Kanker, Bundelkhandi, Manipuri, Kudukh, Bhutia, English, Bangla, Mizo and Marathi. Presently the content on DIKSHA relates to grades 1-12.

- NCERT has also boarded DIKSHA and e-Contents from Portals like National Repository of Open Educational Resources (NROER) and e-Pathshala are also uploaded on DIKSHA thereby making access easier for all stakeholders. All the resources of NCERT can be accessed at https://diksha.gov.in/ncert/
- Total Learning sessions on DIKSHA – 337+ crores. Total Learning in minutes on DIKSHA – 4,139+ crore minutes
- Page hits on DIKSHA from 01.04.2020 – 2,379+ crores
- Average daily page hits 5 + crores
- 4,575 Energized Textbooks developed by States/UTs and NCERT
- 206,547 pieces of e-content are live on DIKSHA as of date.

- DIKSHA app has been rated as one of the top-rated Free Education App on Google Play Store in India since May 2020.

DIKSHA is a flexible and evolving platform, with the below-mentioned diverse set of solutions, developed and that will continue to expand, based on the aggregated needs of the various states/UTs.

iii) **Access through TV channels**: Swayam Prabha DTH channels are meant to support and reach those who do not have access to the internet. 12 Swayam Prabha Channels are earmarked for school education under the one class: one TV channel PM eVIDYA initiative. Opportunity for viewer expert interaction is provided through regular live interactive sessions on these channels with experts through Skype. The Department of School Education and Literacy also tied up with private DTH operators like Tata Sky & Airtel to air educational video content to enhance the reach of these channels. NCERT has launched a beta run of leveraging DTH channels to disseminate class wise curriculum-linked content under the PM eVidya initiative with effect from 1st September 2020. To ensure coherent access through multimodal delivery, the broadcasted content has QR codes and can be linked with the chapter and topic wise content available on DIKSHA to ensure asynchronous usage by anyone, anytime, anywhere.

iv) **On Air**: Radio broadcasting is being used for children in remote areas who have no internet connectivity (especially for grades 1 to 5) to ensure that the absence of the internet and other digital devices does not impede access to quality education. The broadcasts focus on inclusive learning. 289 Community Radio Stations have been used to broadcast content for NIOS for grades 9 to 12. 1995 pieces of curriculum-based radio programs (Classes 1 -8) and 06 for class 10 produced by CIET-NCERT for its dissemination on 226 Radio Stations (132 All India Radio Stations, 18 GyanVani FM Radio Stations, and 76 Community Radio Stations) have been broadcasted. A Podcast called Shiksha Vani of the Central Board for Secondary Education (CBSE) is being effectively used by learners of grades 9 to 12. All these radio content and podcasts are also coming on DIKSHA in the coming months. The programs are produced under 2 major categories - Dhwanishala Series (Curricular based studio programmes) and Umang Series (Audio programmes for enrichment, infotainment, and edutainment).

v) **For the Differently Abled**: To ensure the participation of children with special needs, the following content types are being provisioned:

- Universal Design of Learning (UDL) based curricular Content in Indian Sign Language (ISL) for CWSN are uploaded on DIKSHA
- Audiobooks are uploaded on DIKSHA
- Curriculum-based audio teaching programs available on DIKSHA
- For visually impaired students, study material has been developed in a Digitally Accessible Information System (DAISY).
- Additionally, one DTH channel is being operated specifically for hearing impaired students in ISL.

vi) ICT Scheme of Samagra Shiksha: ICT has become integral to the teaching-learning interaction, through such approaches as replacing chalkboards with interactive digital whiteboards, using student's smartphones or other devices for learning during class time, and the "flipped classroom" model where students watch lectures at home on the computer and use classroom time for more interactive exercises. The ICT Policy in School Education aims at preparing youth to participate creatively in the establishment, sustenance and growth of a knowledge society leading to the all-round socio-economic development of the nation and global competitiveness and to devise, catalyze, support and sustain ICT and ICT enabled activities and processes to improve access, quality and efficiency in the school system. The government of India had introduced ICT@ Schools scheme in the year 2004 {by merging the scheme of Educational Technology -1972 and Computer Literacy and Studies in Secondary Schools (CLASS)-1984} to provide opportunities to secondary stage students to mainly build their capacity on ICT skills and make them learn through the computer-aided learning process and to bridge the digital divide amongst students of various socio-economic and other geographical barriers. The Scheme has provided support to States/UTs to establish computer labs on a sustainable basis. The scheme was revised in the years 2010 and 2011 and a component to develop quality digital content and incentives for teachers (National ICT Award for School Teachers) was introduced. Besides, the Computer Aided Learning (CAL) program under SSA provided ICT infrastructure in Upper Primary schools, through the provision of Rs.50 Lakh per annum per district. Also under the Teacher Education component, ICT infrastructure has been provided to the Teacher Education Institutions (TEIs) i.e. SCERTs/SIEs, DIETs, BITEs, etc. The aforesaid ICT@Schools scheme along with CAL programme under SSA and ICT interventions under Teacher

Education component has been subsumed as ICT in School Education component of the scheme of Samagra Shiksha.

vii) Interventions under the ICT:

- Partnership with State Governments and UT Administrations and TEIs
- Teacher related interventions
- Development of digital learning resources Under Samagra Shiksha, ICT component envisages covering all Government and Government Aided schools from classes VI to XII and Teacher Education Institutions (TEIs), subject to the availability of budgetary provision. Preference for various interventions will be given to Educationally Backward Blocks (EBBs), Left Wing Extremism (LWE) areas identified by MHA-GoI, SFDs (Special Focus Districts) and 117 aspirational districts and areas with a concentration of SCs, STs, minorities and weaker sections. Further, fifty percent of the physical targets for strengthening ICT in schools have to be identified from Northeastern States, LWE Districts, Island territories and other backward areas.

viii) National Digital Education Architecture (NDEAR): The progress of India in the coming decades will be fuelled by the participation of children and youth who should be able to tap into the opportunities offered by a growing economy that is becoming increasingly digital. The technology needs of the school education ecosystem in India are vast and varied, not all of which can be solved by the government acting in a standalone fashion. The National Education Policy, 2020 in para 24.4 (b) states very clearly that – "There is a need to invest in the creation of open, interoperable, evolvable, public digital infrastructure in the education sector that can be used by multiple platforms and point solutions, to solve for India's scale, diversity, complexity and device penetration. This will ensure that the technology-based solutions do not become outdated with the rapid advances in technology." National Digital Education Architecture (NDEAR) has been conceived as a unifying National Digital infrastructure to energize and catalyze the education ecosystem. The core idea of NDEAR is to facilitate achieving the goals laid down by National Education Policy 2020, through a digital infrastructure for innovations by, through and in the education ecosystem, ensuring autonomy and participation of all the relevant stakeholders. It will pave the way to achieve learning outcomes by offering solutions to learners and teachers. Besides, it will also recognize the digital rights of our children and evolve best practices to ensure safety

and security from untoward exposure. Ultimately, it will enable more comprehensive access and faster cycles of innovation in the education sector leveraging technology tools.

National Education Policy 2020 & Digital Education in India

The policy document of NEP 2020 and its implementation since 2020, has been placing emphasis on certain fundamental principles, such as recognizing, identifying, and fostering the unique capabilities of each student; flexibility in learning; creativity and critical thinking: and so on, that will guide the future of education system and institutions in developing knowledge, skills, values, and dispositions to support quality of life, sustainable development, and global well-being. There is a fundamental change in the pedagogical and curricular structure from the early childhood education up to higher education not only to attain 100% Gross Enrolment Ratio (GER) but also to effectively prevent dropout rates by providing opportunities and infrastructure to attend a quality school including carefully tracking the students so as to give fundamental and sufficient educational investment for human development and quality of life. A critical and important dimension of this policy at all levels of education is digitalization and this process of digitalization gets boosted in the system with the introduction of lifelong learning and flexibility. More increasingly the digitalization is going to occupy the process of enrolments, designing of curriculum, pedagogy, and evaluation, and subsequently, it will transform the educational development and knowledge gaining process of individuals who are in the formal system of education. This is very important for the quality of life of individuals in the contexts of social, cultural, and economic elements of human life of the future India. Our attention is not on NEP 2020 but rather analytically and empirically examining the implications of various key policy initiatives of NEP 2020 on quality of life while keeping digitalization of education and other aspects of the same on human life as focal points.

The per capita net national income during 2020–2021 is $1927.7 compared to the per capita income $1605.6 in 2015. It is also important to note that at the beginning of COVID19 pandemic, India enjoyed the highest per capita income of $2100 during 2019 and it is evident that there is a drop in the per capita income due to a sharp decrease in the GDP growth rate. This has resulted in the implementation of programs pertaining to information and communication-enabled processes of educational development and growth. It is also important to note the literacy rates, which is a fair indicator of educational spread and gives a clear understanding of the population under consideration for the overall benefit of the new educational policy

in India, stood 77.7% overall during 2021 as compared to 71.9 in 2015, which is around a 5.8% increase in the literacy rates. If one looks at male-female classifications of literacy rates, there are considerable improvements as 84.7% and 70.3%, respectively, for males and females during 2021 as against 80.9% and 62.9% in 2015. The rise in the literacy rates, which is due to an enormous boost given by various federal government policies including that of support from the private sector, indicate a structural transformation of educational development and the adoptability of institutional framework in fostering the digital and online educational modes.

NEP 2020 needs to address the social reality of diversity, educational exclusion and allow all in realistic perspectives. An optimal outcome in the domains of physical, mental, and emotional development seems to have moderate fit. These results are obtained despite a good amount of analytical disposition of model formation and data mining process.

Conclusion & Discussion

We are living in the digital era which is powered by information and communication technology tools. Therefore, India as a nation needs to keep pace with the advancement of science and technology and make use of ICT based tools in imparting education to the students and enter the transformed era of digitalization of education.

NEP 2020 is a vast policy measure and implementation is going to be a complex issue. Given the framework of this attempt, in our opinion, there are limitations. NEP 2020 addresses exhaustively various educational policy reforms, and guidelines. On the other hand, viability of social cost–benefit analysis and sources of finance are an issue in society. The scope is vast in the future to build a time series model and presently, it is not possible due to the reason that the implementation of NEP 2020 started recently. The impact of certain economic factors influencing Quality of Life (QOL) has not been explicitly considered in building a simultaneous equation model.

Social and cultural rigidities coupled with educational disparities and income inequalities will present massive bottlenecks for achieving the desired outcome. Incidentally, both the recovery of the economy and foster economic growth enables some aspects like reducing poverty and unemployment, as visualized by trickle-down theory, and eventually, depth of inequalities can be partly taken care of. One of the most stunning aspects of NEP 2020 is multidisciplinary and lifelong learning. In our opinion, remarkable progress on the quality of life can be made possible with flexibility in proper life-long education and training, which can combine skill, experience, quality of education, and rigidity of the segmented labor market into

better opportunities and employment. The multidisciplinary approach is a novel concept that can give exorbitant social dividends provided institutional constraints such as curriculum building and quality teaching, proper conduct of multidisciplinary quality research at university levels are properly addressed in line with the policy aims of NEP 2020. The policy looks attractive on paper, but there are huge difficulties in implementing when it comes to improving the Quality of Life (QOL).

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Economics of Digital Empowerment and the Digitalization of Education: Implications for Access, Equity and Economic Development

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Abstract

This article delves into the transformative impact of digital empowerment and the digitalization of education on access, equity, and economic growth, with a focus on India. It examines the cost-effectiveness of digital learning compared to traditional methods, exploring cost calculations and implications for skill development and socioeconomic disparities. The National Education Policy (NEP) of 2020 and initiatives like PM e-Vidya are highlighted as key drivers of technological integration in education. Despite the potential benefits, challenges such as the digital divide, dropout rates, and reluctance towards online learning persist. The article provides policy recommendations to enhance digital empowerment and education in India, emphasizing the importance of internet access, teacher training, curriculum development, and collaboration with the private sector. By leveraging digital technologies, India can bridge educational gaps, foster inclusive growth, and empower its young population to thrive in the digital age.

Keywords

NEP 2020, MOOC, Digital Empowerment, Digitalization of Education.

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Introduction

Education has been mostly in classrooms for a long time, but using technology for learning could change it a lot. It could make it easier for more people to get really good education for a lower cost. E-learning has many benefits such as being able to learn anytime, anywhere, saving money, reaching more people, and learning in a way that works best for you, and having more flexibility.

This paper gives information about whether digital learning is cheaper and just as good as traditional ways of learning. It explores how costs are calculated, the impact of digital education on developing people's skills, the differences in wealth among people, and ways to make sure everyone benefits from economic growth. Additionally, it lists MOOC platforms for online learning, talks about how the National Education Policy of 2020 is changing education through technology, looks at the effects of using technology in education, talks about the problems with using technology in education in India, and suggests ways to use of technology in education in India. These suggestions are backed up by information from Ministry and Government Websites, as well as research papers and articles.

Background

Digital empowerment helps people learn the things they need to know to use technology in the digital world. It makes sure that everyone, irrespective of their social or economic status, can use technology to improve their lives. This gives people more opportunities to grow personally, advance in their careers, start their own businesses, and get education. It gives them access to lots of information and resources to learn and improve their skills. (Source: Valerie Forgeard, 2023).

The school system is getting better. The students nowadays are not meant to be held back by old-fashioned ways of learning. They are very curious and are not satisfied with traditional ways of learning. If we keep teaching them the same way as before, our children won't have a better future.

Digitalization of education means using digital technologies in all parts of the learning process, like designing the curriculum, teaching, testing, and administrative work. Interactive multimedia, simulations, and virtual reality can make learning more effective and engaging.

Various components of the digitalization of education include:

- **E-learning Platforms:** Online platforms and Learning Management Systems (LMS) hosting digital courses, assignments, and resources.
- **Digital Contents:** Interactive textbooks, multimedia resources, educational apps, and simulations.

- **Collaborative Tools:** Video conferencing, discussion forums, and collaborative document editing for group projects and discussions.
- **Teaching Platforms:** Google Meet, Zoom Meeting, Microsoft Team, Quampus etc.
- **Assessment Tools:** Digital quizzes, tests, and grading systems.

List of Available MOOC Platforms which can be Uused for E-learning

- **Global Platforms**: EDX, Coursera, Udemy, Edureka, Simplilearn, Skillwise, Upgrad, Springboard, Wiziq, Alison, skillshare, Futurelearn, Udacity, Cognitive Class, Iversity, LinkedIn Learning, Kadenze, Canvas, Independent, ThaiMOOC, openSAP, open education by Blackboard, gacco, EMMA, Federica, Rwaq, openHPI, EduOpen, NovoEd, Polimi Open Knowledge, Open2study, Openlearning, Stepik, Edraak, Openclassroom, Desire2Learn, MangoDB University, IndonesiaX, Janux, XuetangX, Acumen Academy, World Science U, Edcast, IONIS, Complexity Explorer, MOOC-ED, UPV[X], MRUniversity, First Business MOOC, Datacamp.

- **Indian Government Platforms:** NIELIT, SWAYAM, DIKSHA, E-Pathshala, NROER, SHAGUN, Swayam Prabha, IIT Pal, Umang App, NIOS, e-yantra, National Digital Library.

Discussion

A. Economic Benefits of Digital Empowerment in Education:

A.1 Cost-effectiveness of Advanced Learning Compared to Conventional Strategies

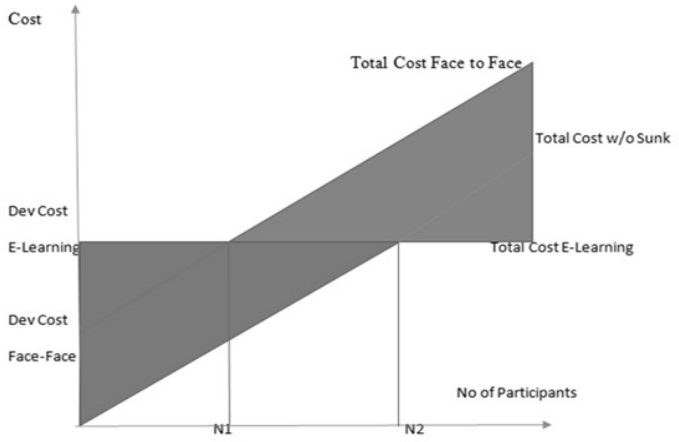
The move from old-fashioned training to e-learning happened because training budgets got smaller and e-learning was found to be more effective. This

part looks at how much it costs for in-person and online education and points out any differences in cost. Also, you will only have to pay for travel expenses if the course is not taught within the company.

i) Cost Formula

The cost formula depends on costs that stay the same, costs that change, and how many people are involved. Expenses are classified as either fixed or variable based on the number of people participating. Fixed costs, like expenses for developing courses, stay the same no matter how many people take part (Source: Gertz, 2010). As a result, the total cost that stays the same no matter how many people are enrolled. This means that as more people join, the cost per person goes down. Economists call this "economy of scale." Other costs like travel expenses are based on the number of participants. This means that when more people participate, the total costs go up, but the costs per person stay the same. So, you can use this formula to figure out the total cost for in-person training and online learning.

Total Cost = Fixed Cost + Variable Cost × No. of Participants



(Diagram Source: Gerts 2010 Research Paper)

ii) Irrelevant Costs

We don't need to include costs that are the same for both regular and online learning when we calculate expenses, such as the training manager's salary. We want to see how much it costs to switch from in-person training to online training or a mix of both. Adding these costs to both options would give the same result but would require more effort than necessary. When deciding whether to mix or replace in-person training with e-learning, don't count the money already spent on in-person

training. For example, if you made a training program that only costs money when the trainer works, then the initial costs don't matter anymore. On the other hand, when considering the new e-learning option, these costs need to be taken into account. (Source: Gertz, 2010).

Both courses require a set amount of money to be spent on developing them, as shown in the picture above. The cost of in-person training is lower than online training. However, once created, the e-learning course does not require additional expenses. As a result, the total cost for e-learning stays the same. On the other hand, the regular class costs different amounts, like paying the trainer. The cost of in-person training keeps going up after it has been developed. (Source: Gertz, 2010) When a certain number of people sign up for N1, the cost for in-person training becomes the same as online training. After this point, online learning costs less than regular training. From the second level and beyond, e-learning costs less than keeping face-to-face training. The variables include things like school buildings and equipment, how teachers teach, and how students learn. Researchers need to understand how technology in education, like easy access, interactive tools, and vast resources, affects students.

A.2 Digitalization of Education and Human Capital Development

Many articles have looked at how learning can help people and communities by improving the economy and society. Economists like Paul Romer, Robert Lucas, and Robert Barrow have studied how a country's education level affects its economic growth. They found that when people in a country are more educated, the country's economy tends to grow faster. "Rewrite this text in simpler words: (Source: OECD) Education at a Glance 2011 provides information about education around the world.

The writers studied how spending money on education and research affects how good life is in a country, using different measures combined together. They discovered that spending money on education improved people's lives. People who have had a good education usually have better health, are less likely to be unemployed, have more friends and are more likely to be involved in community and political activities. (Source: Loanescu et al, 2013) (Source: Loanescu and colleagues, 2013)

In today's world, it's clear that learning throughout your life is really important. It's not just limited to when you're in school. Thanks to online learning, people can keep learning even after they finish school. They can learn new things like writing in English, computer coding, and how to work well with other people. This helps both people who work in a job and those who don't.

https://doi.org/10.31995/rjpss.2023.v48iS.013

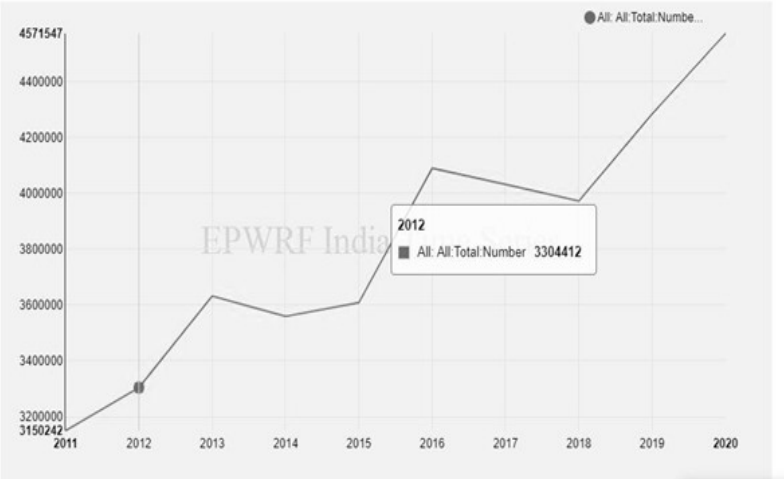
B. Economic Disparity and Inclusive Growth: The Potential of Digitization and Digital Inclusion can Bridge the Education Gap between Different Socio Economic Groups.

Digital inclusion means making sure that everyone can use technology to be part of the economy and society. It means having internet, knowing how to use it, and having devices that aren't too expensive. Digital inclusion is not only about having technology, but also about being able to use it well. If you know how to use the internet and computers, you can use online resources to learn, join virtual classes, and get medical help without going to the doctor's office. This can help make education and healthcare better for people who live in rural or low-income areas. Access to computer and internet technology can help people find better jobs, because many jobs today need people who can use digital tools. Investing in programs that help more people use technology is very important for helping communities grow and making sure everyone can take part in the digital economy.

(Source: Hocket Apersil, 2023) (Source: Hocket Apersil, 2023) (Source: Hocket Apersil, 2023)

C. Scope of Digital Education to Increase the Penetration of Education in Underserved Areas

C.1 Increase in Enrolment Rate of Students in Distance Education at Tertiary Level

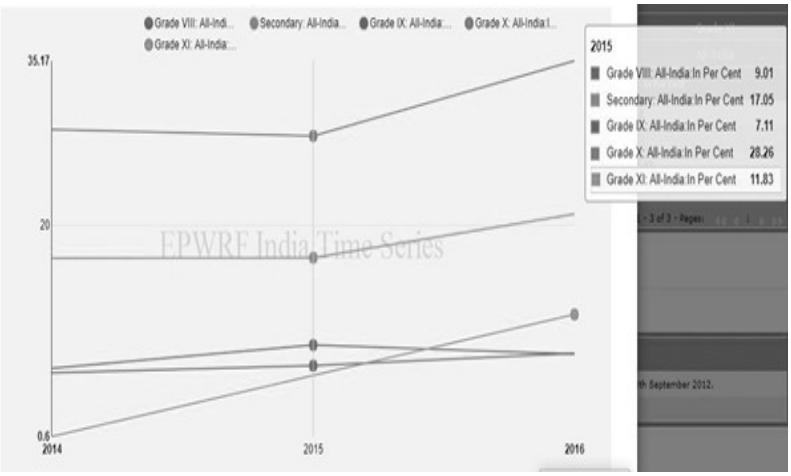


(Graph Source: EPWRF India Time Series Database)

The graph above tells us how many students on an average went to college online each year from 2011 to 2020. More students are signing up for online college

courses in India. This shows that more people are using digital technology for education in higher education. This good relationship shows that more people are using digital tools and online platforms for learning. It means that colleges are starting to use online classes and remote learning more and more in their programs. Online learning is becoming more popular because it's easy to do, it gives people more access to learning, and universities are changing to meet students' needs in the digital age. These are all reasons why online learning is growing.

C.2 Dropout Rates of Students at Secondary and Senior Secondary Level Education



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The chart shows how many students dropped out of Secondary and Senior secondary school in India from 2014 to 2016. There are many more students dropping out of high school in India. Many high school students are dropping out because of problems like money, personal issues, and struggles with schoolwork. These students who left school early may have a hard time finishing their education and finding opportunities to learn skills and get a job in the future.

Students who have left school may find it helpful to learn online. It provides flexible learning choices that can fit many different schedules and needs. Digital education helps students who might quit school because of different problems by offering online classes, remote tutoring, or a mix of in-person and online learning. Digital education makes it easier for people in far away or poorer areas to access really good education without having to worry about where they live. It can help students to work and learn at the same time, which can help with budget problems.

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The National Education Policy (NEP 2020) wants to bring technology into schools, and the PM e-Vidya initiative is working hard to make this happen. Teachers, who are seen as heroes, are learning to use digital tools to give different learning options to all students. Online training programs for teachers make it possible for them to access training whenever and wherever they want. The Indian education system wants to help students learn in and out of the classroom. The Online/Digital Education Guidelines and Standards are important to make sure all students have the same chances to learn, even if they don't have access to digital resources. Our main aim is to improve India's education system and make it great again through clever ideas.

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- We are trying to make learning digital because our education system is having a hard time with the basic learning setup. The government has been trying for a long time to give 6% of the country's money to education, but it hasn't worked. A good electrical system is important for using computers and the internet for learning.
- Practical learning in college doesn't work well with digital and online learning. Learning and just doing things without thinking is not useful.

F. Policy Recommendations for Digital Empowerment and Digitalization of Education in India

To make technology work better in schools, important people like government officials and teachers need to improve things like internet, training for teachers, creating educational materials, working with businesses to help schools, testing and certifying students digitally, making sure the quality of education is good, giving money to help, doing research to make things better, keeping things safe online, and working with schools in other countries. The new rules include making internet access better, buying new technology, training teachers, creating more learning materials, working with private companies, making tests fairer, keeping prices low, doing research, keeping online information safe, and working with other countries. Putting these suggestions into action can create a good setting for getting the most out of using technology in education, and making sure that everyone has fair access to a great education.

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Using technology can help more people learn on the internet and making education digital can help more people become good at using technology and feel powerful because of it. "Online courses and computer programs can provide education to a lot of people at once. " Online learning saves money and helps families spend less on their children's education. It also helps to create skilled and productive workers. There are many online learning platforms for e-learning, but the government needs to speed up the process of digitalizing education in India to take advantage of the young population.

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Economics of Digital Empowerment and the Digitalization of Education: Implications for Access, Equity and Economic Development

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Abstract

This article delves into the transformative impact of digital empowerment and the digitalization of education on access, equity, and economic growth, with a focus on India. It examines the cost-effectiveness of digital learning compared to traditional methods, exploring cost calculations and implications for skill development and socioeconomic disparities. The National Education Policy (NEP) of 2020 and initiatives like PM e-Vidya are highlighted as key drivers of technological integration in education. Despite the potential benefits, challenges such as the digital divide, dropout rates, and reluctance towards online learning persist. The article provides policy recommendations to enhance digital empowerment and education in India, emphasizing the importance of internet access, teacher training, curriculum development, and collaboration with the private sector. By leveraging digital technologies, India can bridge educational gaps, foster inclusive growth, and empower its young population to thrive in the digital age.

Keywords

NEP 2020, MOOC, Digital Empowerment, Digitalization of Education.

Reference to this paper should be made as follows:

Mr. Durgesh Shambharkar, Ms. Nitika

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Introduction

Education has been mostly in classrooms for a long time, but using technology for learning could change it a lot. It could make it easier for more people to get really good education for a lower cost. E-learning has many benefits such as being able to learn anytime, anywhere, saving money, reaching more people, and learning in a way that works best for you, and having more flexibility.

This paper gives information about whether digital learning is cheaper and just as good as traditional ways of learning. It explores how costs are calculated, the impact of digital education on developing people's skills, the differences in wealth among people, and ways to make sure everyone benefits from economic growth. Additionally, it lists MOOC platforms for online learning, talks about how the National Education Policy of 2020 is changing education through technology, looks at the effects of using technology in education, talks about the problems with using technology in education in India, and suggests ways to use of technology in education in India. These suggestions are backed up by information from Ministry and Government Websites, as well as research papers and articles.

Background

Digital empowerment helps people learn the things they need to know to use technology in the digital world. It makes sure that everyone, irrespective of their social or economic status, can use technology to improve their lives. This gives people more opportunities to grow personally, advance in their careers, start their own businesses, and get education. It gives them access to lots of information and resources to learn and improve their skills. (Source: Valerie Forgeard, 2023).

The school system is getting better. The students nowadays are not meant to be held back by old-fashioned ways of learning. They are very curious and are not satisfied with traditional ways of learning. If we keep teaching them the same way as before, our children won't have a better future.

Digitalization of education means using digital technologies in all parts of the learning process, like designing the curriculum, teaching, testing, and administrative work. Interactive multimedia, simulations, and virtual reality can make learning more effective and engaging.

Various components of the digitalization of education include:

- **E-learning Platforms:** Online platforms and Learning Management Systems (LMS) hosting digital courses, assignments, and resources.
- **Digital Contents:** Interactive textbooks, multimedia resources, educational apps, and simulations.

- **Collaborative Tools:** Video conferencing, discussion forums, and collaborative document editing for group projects and discussions.
- **Teaching Platforms:** Google Meet, Zoom Meeting, Microsoft Team, Quampus etc.
- **Assessment Tools:** Digital quizzes, tests, and grading systems.

List of Available MOOC Platforms which can be Uused for E-learning

- **Global Platforms**: EDX, Coursera, Udemy, Edureka, Simplilearn, Skillwise, Upgrad, Springboard, Wiziq, Alison, skillshare, Futurelearn, Udacity, Cognitive Class, Iversity, LinkedIn Learning, Kadenze, Canvas, Independent, ThaiMOOC, openSAP, open education by Blackboard, gacco, EMMA, Federica, Rwaq, openHPI, EduOpen, NovoEd, Polimi Open Knowledge, Open2study, Openlearning, Stepik, Edraak, Openclassroom, Desire2Learn, MangoDB University, IndonesiaX, Janux, XuetangX, Acumen Academy, World Science U, Edcast, IONIS, Complexity Explorer, MOOC-ED, UPV[X], MRUniversity, First Business MOOC, Datacamp.

- **Indian Government Platforms:** NIELIT, SWAYAM, DIKSHA, E-Pathshala, NROER, SHAGUN, Swayam Prabha, IIT Pal, Umang App, NIOS, e-yantra, National Digital Library.

Discussion

A. Economic Benefits of Digital Empowerment in Education:

A.1 Cost-effectiveness of Advanced Learning Compared to Conventional Strategies

The move from old-fashioned training to e-learning happened because training budgets got smaller and e-learning was found to be more effective. This

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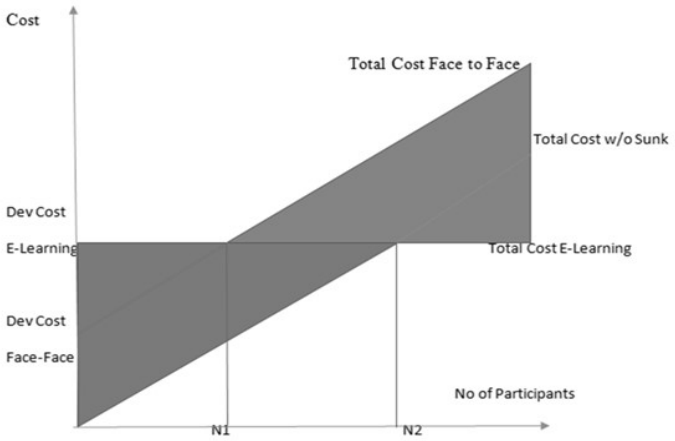
part looks at how much it costs for in-person and online education and points out any differences in cost. Also, you will only have to pay for travel expenses if the course is not taught within the company.

i) Cost Formula

The cost formula depends on costs that stay the same, costs that change, and how many people are involved. Expenses are classified as either fixed or variable based on the number of people participating. Fixed costs, like expenses for developing courses, stay the same no matter how many people take part (Source: Gertz, 2010). As a result, the total cost that stays the same no matter how many people are enrolled. This means that as more people join, the cost per person goes down. Economists call this "economy of scale." Other costs like travel expenses are based on the number of participants. This means that when more people participate, the total costs go up, but the costs per person stay the same. So, you can use this formula to figure out the total cost for in-person training and online learning.

Total Cost = Fixed Cost + Variable Cost × No. of Participants



(Diagram Source: Gerts 2010 Research Paper)

ii) Irrelevant Costs

We don't need to include costs that are the same for both regular and online learning when we calculate expenses, such as the training manager's salary. We want to see how much it costs to switch from in-person training to online training or a mix of both. Adding these costs to both options would give the same result but would require more effort than necessary. When deciding whether to mix or replace in-person training with e-learning, don't count the money already spent on in-person

training. For example, if you made a training program that only costs money when the trainer works, then the initial costs don't matter anymore. On the other hand, when considering the new e-learning option, these costs need to be taken into account. (Source: Gertz, 2010).

Both courses require a set amount of money to be spent on developing them, as shown in the picture above. The cost of in-person training is lower than online training. However, once created, the e-learning course does not require additional expenses. As a result, the total cost for e-learning stays the same. On the other hand, the regular class costs different amounts, like paying the trainer. The cost of in-person training keeps going up after it has been developed. (Source: Gertz, 2010) When a certain number of people sign up for N1, the cost for in-person training becomes the same as online training. After this point, online learning costs less than regular training. From the second level and beyond, e-learning costs less than keeping face-to-face training. The variables include things like school buildings and equipment, how teachers teach, and how students learn. Researchers need to understand how technology in education, like easy access, interactive tools, and vast resources, affects students.

A.2 Digitalization of Education and Human Capital Development

Many articles have looked at how learning can help people and communities by improving the economy and society. Economists like Paul Romer, Robert Lucas, and Robert Barrow have studied how a country's education level affects its economic growth. They found that when people in a country are more educated, the country's economy tends to grow faster. "Rewrite this text in simpler words: (Source: OECD) Education at a Glance 2011 provides information about education around the world.

The writers studied how spending money on education and research affects how good life is in a country, using different measures combined together. They discovered that spending money on education improved people's lives. People who have had a good education usually have better health, are less likely to be unemployed, have more friends and are more likely to be involved in community and political activities. (Source: Loanescu et al, 2013) (Source: Loanescu and colleagues, 2013)

In today's world, it's clear that learning throughout your life is really important. It's not just limited to when you're in school. Thanks to online learning, people can keep learning even after they finish school. They can learn new things like writing in English, computer coding, and how to work well with other people. This helps both people who work in a job and those who don't.

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B. Economic Disparity and Inclusive Growth: The Potential of Digitization and Digital Inclusion can Bridge the Education Gap between Different Socio Economic Groups.

Digital inclusion means making sure that everyone can use technology to be part of the economy and society. It means having internet, knowing how to use it, and having devices that aren't too expensive. Digital inclusion is not only about having technology, but also about being able to use it well. If you know how to use the internet and computers, you can use online resources to learn, join virtual classes, and get medical help without going to the doctor's office. This can help make education and healthcare better for people who live in rural or low-income areas. Access to computer and internet technology can help people find better jobs, because many jobs today need people who can use digital tools. Investing in programs that help more people use technology is very important for helping communities grow and making sure everyone can take part in the digital economy.

(Source: Hocket Apersil, 2023) (Source: Hocket Apersil, 2023) (Source: Hocket Apersil, 2023)

C. Scope of Digital Education to Increase the Penetration of Education in Underserved Areas

C.1 Increase in Enrolment Rate of Students in Distance Education at Tertiary Level

(Graph Source: EPWRF India Time Series Database)

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courses in India. This shows that more people are using digital technology for education in higher education. This good relationship shows that more people are using digital tools and online platforms for learning. It means that colleges are starting to use online classes and remote learning more and more in their programs. Online learning is becoming more popular because it's easy to do, it gives people more access to learning, and universities are changing to meet students' needs in the digital age. These are all reasons why online learning is growing.

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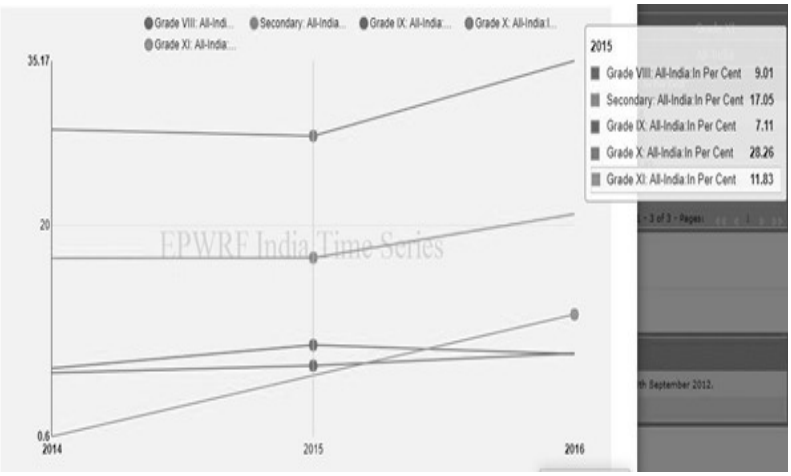

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Review Journal of Philosophy & Social Science	1975	0258-1707	2454-3403	Half Yearly Mar-Sept.	8.862
Review Journal of Political Philosophy	2003	0976-3635	2454-3411	Half Yearly Mar-Sept.	8.858
Journal Global Values	2010	0976-9447	2454-8291	Half Yearly June-Dec.	8.835
Arts & Humanities	**SINCE**	**ISSN (P)**	**ISSN (E)**	**PERIOD**	**IMPACT FACTOR**
Notions: A Journal of English Literature	2010	0976-5247	2395-7239	Half Yearly June-Dec.	8.874
Artistic Narration: A Journal of Performing Art	2010	0976-7444	2395-7247	Half Yearly June-Dec.	8.898
Science	**SINCE**	**ISSN (P)**	**ISSN (E)**	**PERIOD**	**IMPACT FACTOR**
Voyager: A Journal of Sciences	2010	0976-7436	2455-054X	Yearly	8.419
Multidisciplinary	**SINCE**	**ISSN (P)**	**ISSN (E)**	**PERIOD**	**IMPACT FACTOR**
Shodhmanthan (शोधमंथन) in Hindi	2010	0976-5255	2452-339X	Quarterly	8.870

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