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## **EDUCATIONAL POLICIES AND PERSPECTIVES OF NATIONAL EDUCATION POLICY 2020: OPPORTUNITIES AND CHALLENGES**

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### **Abstract**

Education as an integral part of the development of society and as a building block of holistic excellence within an individual to solve life problems must be advocated by a policy that would let education illuminate all the dark corners of our minds. An appropriate policy can facilitate education as a whole to build an individual and thereby build a society and ultimately build a nation. The introduction of the National Education Policy 2020 (NEP) can be regarded as the trigger to switch that light on. This paper is an attempt to recognize the inevitability of having a new education policy for our country to explore the opportunities and triumph over the challenges in the path of implementation of NEP 2020.

**Key words:** National Education Policy 2020, Multidisciplinary System, Multilingualism, Gender Inclusion Fund, Early Child Care Education, Vocational Education, Technical Education

### **• Introduction:**

In the process of appraisal of educational system and real life cultural and industrial strength of India, the famous poet T. S. Eliot may be quoted- "Time past & time present are both perhaps contained in time future". This present study is objected to focus at the glorious past of India, misery thereof and the present ray of hope ignited by the National Education Policy 2020. To reach at a 'time future' where our pass outs match the global standard, we need objective assessment of our strengths and weakness to grab the opportunity and eliminate the challenges.

All over the world, emphasis is always been given to reform the educational system time to time as per the changing demands of the society to create more employment opportunities, to improve economy, to develop problem solving skills in an individual, to provide equal opportunity for all etc. After independence, to reform the educational system of India, a number of commissions and policies have come into effect till now-

1. **University Education Commission (1948).**
2. **Secondary Education Commission (1952).**
3. **Indian Education Commission (1964-66) (The Kothari Commission).**
4. **National Policy on Education (1968).**
5. **National Policy on Education (1986).**
6. **National Policy on Education (1992).**
7. **National Education Policy 2020.**

### **• Education in Pre-independent India- A Historical Background:**

The education policy in pre-independent India can be discussed into two time periods-

- i. Before British Rule and
- ii. During the British Rule.

#### **(i) Before British Rule:**

In India existence of advanced science & technology were vibrant for about 4000 years up to 1500 A.D. Its peak was spread around 500 A.D. to 700 A.D. when Aryabhat, Barahamihir, Bhramagupta led the world's Science arena.

As our country's genius was ignited long back as proved by the fact that our participation in World trade & Industry even in 1700 A.D. were about 23% and this could not be an 'Isolated Event'. These kinds of historical traces, recorded as a sense



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of pride about our heritage, needs to be inculcated in the young minds. Any false hood regarding enlightenment of Indians under British Rule would never be able to prove that they jumped into a barbaric land only to rule. Rather the truth was that India's wealth did attract them.

Knowledge on Medical Science can be traced back to Atharva veda. Later on a separate name and form was given for knowledge in the nomenclature of Ayurveda. In fact this name is indicative of an epistemological journey, which is more than Medical Science as Ayu means life span and Veda means knowledge base. So connotation of Ayurveda is a science that deals with life span and obviously increasing it.

It had been shown by A.F. Rudlof Hoernle in "Studies in the Medicine of Ancient India" that in some rhymes of Atharvaveda, even anatomy of human body were profoundly described. Tracking back the period when Ayurveda was composed is a herculean task and may stand as impossibility but historical personalities, like Atreya and Sushrut stood as famous scientists dealing in Medicine in 600 A.D. Dr. Hishberg wrote. "The whole plastic surgery in Europe had taken its new flight when these cunning devices of Indian workmen became known to us. The transplanting of sensible skin flaps is also an entirely Indian method".

Regarding University Education in particular and Education System in General, India was far ahead of the University system in Europe and others. Existence of Universities in Europe could only be found around 11 & 12<sup>th</sup> century. During those periods Bologna, Oxford etc came into existence. World's oldest University Nalanda was established in India around 5<sup>th</sup> century during Gupta dynasty, far ahead of any such establishment anywhere in the world. Few other historically important universities were Takshashila, Nalanda Balvi, Bikramshilla, Jagaddal & Dantapuri.

In the first millennium and the few centuries preceding, there was a flourishing of higher education at Nalanda, Takshashila University, Ujjain and Vikramshila Universities. The important subjects were mainly the art, the architecture, the painting, the logic, the grammar, the philosophy, the astronomy, the literature, the Buddhism, the Hinduism, the Arthashastra, the law, and the medicine. The Nalanda, being the biggest centre, had all the branches of knowledge and housed up to 10,000 students at its peak. The British records reveal that the education was widespread in the 18<sup>th</sup> century, with a school for every temple, mosque or village in most regions of the country. These schools had the student representatives from all classes of the society. In those days principle and workings of technical education were of different kind altogether. Otherwise India's proven position in the world in trade and industry would have been impossible.

### **(ii) During British Rule:**

They came for trade through East India Company and settled as ruler. For the purpose of governance they needed surveying and thus first trace of technical education in the form of a Survey School was established in Madras.

It used to teach only English boys and the British policy was against teaching survey to Indian for maintaining secrecy due to military reasons and political implications. The General Committee of Public Instruction was constituted to deliberate on education system in India under British Rule. That committee was subsequently abolished and in 1842 A.D. a Council of Education was framed.

The said committee and later on the council stressed upon spreading 3 R's (Reading, Writing and Arithmetic) along with teaching of surveying as these are necessary for judicial and revenue work. They further recommended that Indian students may be allowed.

With strong recommendation by the British authorities time to time regarding the need of skilled workmen and engineers for country wide surveying, navigation construction of roads, bridges, canals and railways, gradually different technical institutions has come into picture.



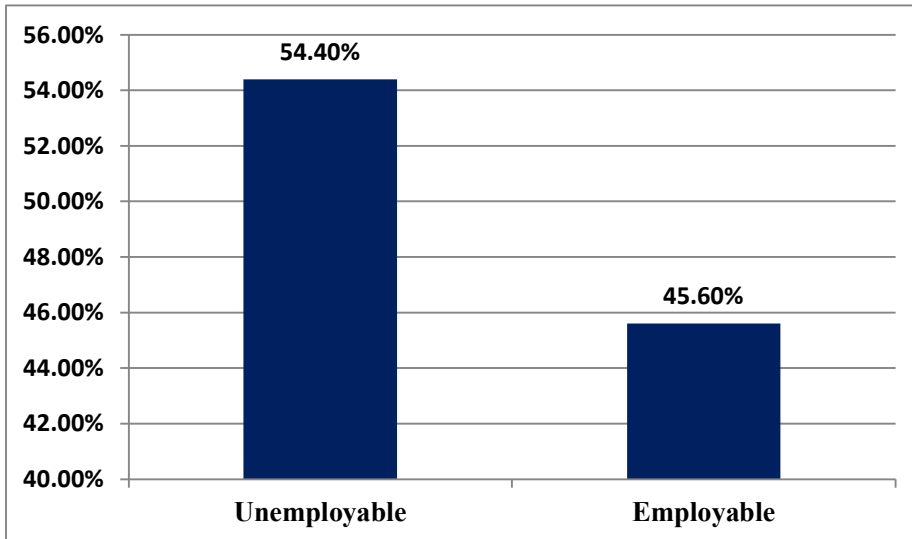
At the end of the 19<sup>th</sup> Century, the capacity of technical education was limited to 4 Engineering Colleges, about 20 survey and technical institutions and some 50 industrial schools. The diplomas and degrees of the Colleges were recognized by the institution of Civil Engineers, London.

During foreign rule wealth were utilized to enrich Treasury and technological growth were divorced from the land of the country. Already existent base of education were not allowed to flourish for the need of the country but restricted growth were allowed, necessary for the rulers. Continuity of huge industrial share of India was no more under the control of Indians. Higher Education and technical education did not flourish with the pace of the World in India.

• **Background Analysis for the Need of NEP 2020:**

After independence, attempts were being made to restore the glorious past which was declined during British Rule. Commissions, affiliating bodies, accreditation agencies were set up. But, compromises were done in spreading R.E.C.'s and NIT'S for the sake of regional parity. The growth was in quantity but quality was comprised. Faculty positions were not fulfilled properly. Infrastructure is not appropriate and as evident from different facts huge regional imbalance exists from north to south, from west to east India.

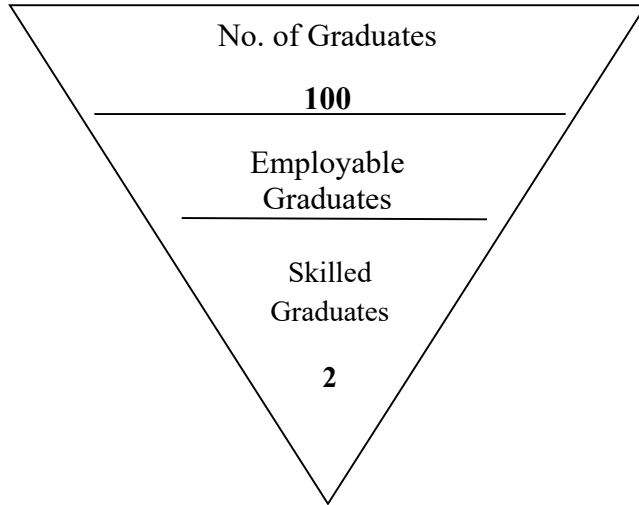
The skill report of 2019 says that only 45.6 % of the graduating youths are employable (Figure 1). Moreover, only 4.69 % of the workforce is skilled.



**Figure 1:**  
rate in report

**Scenario of employability India according to Skill 2019.**

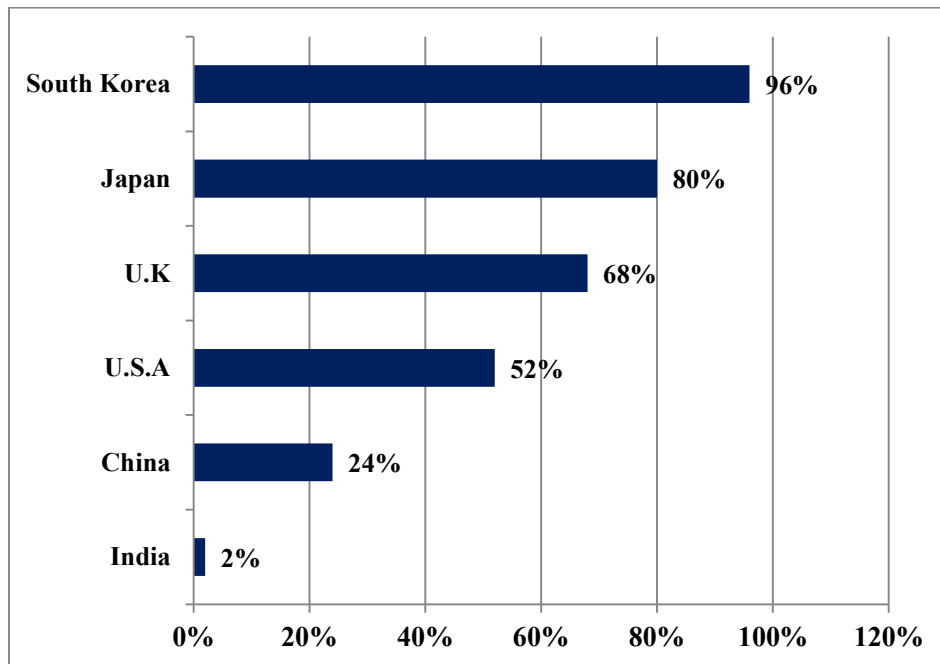
For students example if we start with 100 then we shall reach at about 46 employable graduates out of which only 2 numbers of employable skilled graduates would be available. The present education system is delivering astringent outcome but with diverging problems of unemployment and social imbalance (Figure 2).



**Figure 2: Outcome of present education system on a scale of 100.**

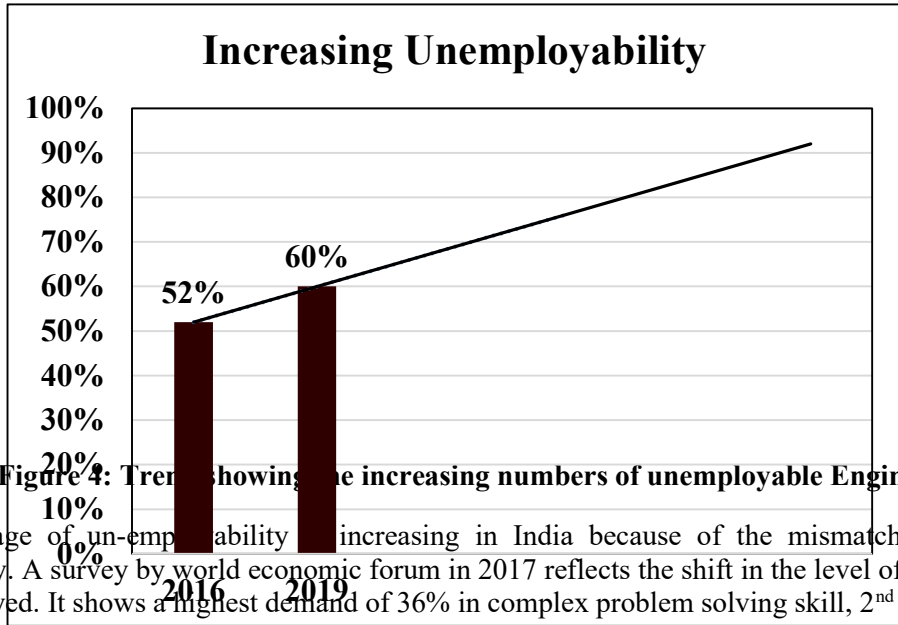
According to the All India Survey of Higher Education (AISHE) conducted by MHRD the number of potentially graduate students this year according to the data of 2017-2018 would be around 3.66 crore. Moreover, every year on an average 1.5 million students get their degree in engineering. Now, these numbers are a matter of concern if we calculate the number of skilled workforce as per the skill report 2019.

Following Figure 3 shows the comparison of skilled workforce of our country with other countries. This shows that 24% of the workforce is skilled in China, 52% in US, 68% in UK, 80% in Japan and 96% in South Korea.



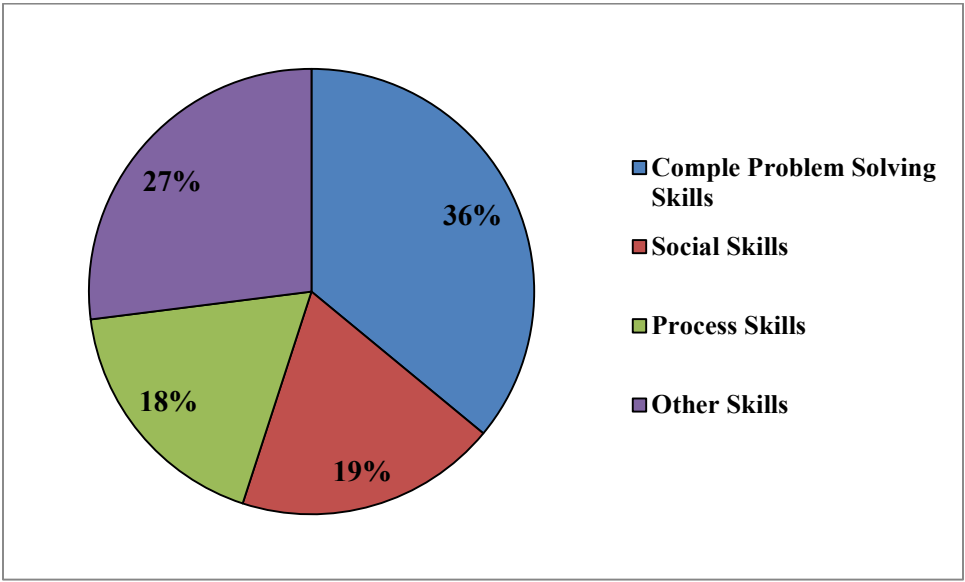
**Figure 3: Comparison of Skilled workforce among Different Countries (Skill Report 2019).**

According to the skill report of 2016 the engineering graduates who are unemployable were 52% whereas it has increased to 60% as per the skill report 2019 (Figure 4). If, this increasing rate continues in future also then according to the trend line as shown in the graph we can anticipate more than 80% unemployable engineering graduates in 2030 and it would potentially damage the economy and social balance of our country.



**Figure 4: Trend showing the increasing numbers of unemployable Engineering Graduates.**

The percentage of un-employability is increasing in India because of the mismatch in between skill training and employability. A survey by world economic forum in 2017 reflects the shift in the level of skills from 2017-2022, required to get employed. It shows a highest demand of 36% in complex problem solving skill, 2<sup>nd</sup> in social skills by 19% and 3<sup>rd</sup> in process skills by 18% (Figure 5).



**Figure 5: Skill Demand Chart (2017-2022) as per the World Economy Forum.**

Whereas in 2015 the highest demand of 52% was in cognitive skills. This indicates a drastic change in skill demand from 2017 to 2022 and onwards. As a result our overall literacy rate of 74% and even 100% in some states doesn't fulfill the requirement of skill needed by industry. This leads to the massive unemployment in our country. So, a change in the educational policy was inevitable.



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● **NEP 2020- An Underlying Opportunity:**

NEP 2020, approved by the Union cabinet on 29<sup>th</sup> July, 2020, comprises of four parts-

- Part-I:** School education
- Part-II:** Higher education
- Part-III:** Other Key Areas (Adult & Online Education, Promoting Indian Languages)
- Part-IV:** Making It Happen (Implementation part)

The NEP 2020 aims to revamp the educational system of our country to bring back the great Indian tradition of pre British era to create well-rounded and innovative individuals for transforming our country educationally and economically. This section highlights the opportunities created by this policy to achieve the desired goal of sustainable development.

**A. Early Child Care Education (ECCE) & School Education:**

When we talk about nation building then we must address early childhood education properly. Because a child, who will grow-up with proper social, emotional, physical and cognitive attributes can make the self future and as well as the future of the country bright. A well decorated early child care education plan can paved the path for overall development of a child and this has been well addressed in NEP 2020.

As per NEP 2020 the ECCE will be integrated with school education where the focus would be on accessibility to free, safe and high quality education to every child in the age range of 3-6 years. Action will be taken for developing appropriate care and education by 2025 for all children. Structure of curriculum and pedagogy is to be changed to four stages-

- i) Foundation stage: 5 years duration from 3-8 years of age. This stage targets the development of language skills & teaching by play-based and activity-based curriculum.
- ii) Preparatory Stage: 3 years duration from 9-11 years of age. This stage targets the development of language and numeracy skills by play, discovery, activity-based and interaction classroom learning
- iii) Middle stage: 3 years duration from 12-14 years of age. This stage focuses on critical learning objectives by having experiential learning (Vocational) in science, mathematics, arts, social sciences and humanities.
- iv) Secondary stage: 4 years duration from 12-18 years of age. This stage focuses on greater critical thinking and flexibility, allowing children to pick subjects of their interests.

**B. Holistic Development of a child:** Study is a part of life whereas now-a-days most of the students believe that this is the whole life. Presently the primary target is to get a job and not learning. Parents send their wards to school and colleges to earn and not to learn. At times we find that students commit suicide when they fail to do good in exams. This is due to the lacuna in the holistic development of life where it is not understood that failure in one part doesn't indicate the failure of life.

Whereas at present mostly marks scored in exams decide the merit and future of a student, in other developed countries the scenario is different. In many of the UK's most eminent scientists did not achieve a first-class degree, while some received third-class honours or worse. Surveying the qualifications of almost 300 experimental scientists who became fellows of the Royal Society it is found that only 54% had gained a first class at undergraduate level. As a human being, it is important to have a strong foundation in every aspect of the personality such as emotional, social, mental and physical and this opportunity is created by NEP 2020 through ECCE and School education.

**C. Life Long Learning:** NEP 2020 also targets to inculcate the habit of learning in children throughout their life by developing a hunger for learning through fun based and activity based learning. Once this eagerness and enthusiasm for learning develops in a child then it remains with them for their entire life.



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- D. Value Education:** The new education policy provides an entirely different perspective on the requirement of education in children from pre-schools. This policy focuses in grasping knowledge and applying them to real life situation. The environment in preschool would help children to learn to become civil towards one another, develop respect for others opinions, develop listening skills and mentality towards equality which demonstrates the value of education.
- E. Vocational Education:** There is a plan for integrating vocational education with regular education, of course in a phased manner. During Grades 6-8, every student will take a fun course that gives a survey and practical experience on important vocational crafts such as carpentry, electric work, metalwork, gardening, pottery making, etc., as mapped by local skilling needs. This can be extended and collaborated with Polytechnic Courses later and simultaneously. In 2016, a study was made by ICE 360<sup>0</sup> where 2,50,720 individuals were surveyed. From the survey, four Levels of skills emerged.

Level 1- Hawker, Mason, Construction Worker etc. [30 % at level 1]

Level 2- Plumber, Carper, Electrician, Artisan, Mechanic, Barber, Tailor etc. [56 % at Level 2]

Level 3- Clerical and Supervisory [11 % at Level 3]

Level 4- Doctor, Lawyer, CA, Engineers etc. [only 4 % at Level 4]

In our current society we always neglect the Level 2 workers and we always assume them to be non-educated persons. The focus of NEP / Vocational Education is to collaborate between Level 2 and Level 3 where the dignity of labor along with higher education is made possible.

- F. Multidisciplinary Approach from Secondary Level:** To understand the opportunity of having a multidisciplinary education system, we can take the example of French physicist LouisDe Broglie. He had intended a career in humanities, and received his first degree in history. Afterwards he turned his attention toward mathematics and physics and eventually received Nobel prize in physics.

According to NEP 2020, the four years duration of secondary school education will facilitate multidisciplinary studies with appropriate exit options besides preparing for the next phase of undergraduate programme of study. There will be no sharp boundary between science and arts. Students will study both common subjects for all and flexible elective courses from liberal arts subjects. The policy aims to have all higher education institutions to be multidisciplinary by 2040.

- G. Multilingualism and the power of language:** According to the educationists “If a student is taught in a language which he/she doesn’t understand then comprehension doesn’t occur and results in rote memorization and writing it out through copying”. The NEP 2020 introduces the mother tongue/ regional language as the medium of instruction until at least grade 5, preferably up to grade 8 and beyond. The policy has implemented the three-language formula, providing language teachers, offering Sanskrit and a foreign language (English) as optional etc. As a result the children can learn and grasp non-trivial concepts more quickly in their mother tongue. Early schooling in a child's mother tongue can improve learning, increase student participation in the classroom and reduce the number of dropouts.

- H. Under-graduation (UG) Education Stage:** This stage will be of either three- or four-year duration. Three years of UG degree programmes without research components and four years of UG degree programmes with research projects may be offered. All Bachelor’s degrees will move towards taking a more comprehensive liberal education approach.

- I. Post-graduation (PG) Education Stage:** The PG degrees will be strengthened with the provision of at least three routes into the Masters’ degree – a one-year degree, a two-year degree, and the integrated five-year degree. A strong research component will be there in the Masters’ degree to strengthen the appropriate professional proficiency in the domain area and to prepare students for a research degree.

- J. Research Stage:** Research will be an integral part of final year undergraduate and postgraduate stages instead graduates can carry out high quality research leading to Ph.D. in any core/ multidisciplinary/interdisciplinary areas for a minimum period of 3 years or 4 years as a full-time or part-time respectively. Focusing on quality research the M.Phil programme



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will be discontinued. A National Research Foundation shall be established to facilitate “merit-based but equitable” peer-reviewed research funding.

**K. Multi Entry-Exit System & Bank of Credit:** To address this point let us take the example of Sir Albert Einstein who was named by Times Magazine as "Man of the Century". The Nobel Prize-winning physicist was dropped out of high school at the age of 15. But, he decided to continue his education a year later and appeared in the entrance exam for admission in to the prestigious Swiss Federal Institute of Technology, but failed. He returned to high school, got his diploma and then passed the university's entrance exam on his second attempt. There are a lot of such examples of dropout students who did very well in their future life. But, in our present education system, dropouts lose their way of building carrier.

As per the NEP 2020: The undergraduate degree will be of either 3 or 4-year duration, with multiple exit options within this period. The policy has also kept the provision for- 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. An Academic Bank of Credit (ABC) will be established to digitally store the academic credits earned by a student from any recognized higher educational institutes so that the credits earned in the previous years can be awarded after entering into the programme again. Due to this ABC, the fear of wastage of years is avoided. In this way NEP 2020 is producing the opportunity to the students to be acknowledged by credits and certificates if they fail to continue their studies due to any reason.

**L. Examination System & PARAKH:** Under NEP 2020, curricular content will be reduced to enhance essential learning and critical thinking and greater focus will be on experiential learning. Board exams are aimed to encourage holistic development and to test core capacities and competencies. New National Assessment Centre, Parakh (Performance Assessment, Review, and Analysis of Knowledge for Holistic Development), will be set up. National Testing Agency to conduct common college entrance exam twice a year.

**M. Gross Enrolment Ratio (GER):** NEP aims to achieve GER from pre-school to secondary education up-to 100% by 2030. The policy aims to achieve it by tracking students and their learning levels to ensure their enrollment and attendance in schools and by providing suitable opportunities to re-join or catch up at school in case they have dropped out or fallen behind.

**N. Gender Inclusion Fund and Special Education Zone:** NEP also aims to have an education system by 2040 that is second to none, which will facilitate highest-quality education for all learners irrespective of social or economic background. Gender inclusion fund and special education zones for disadvantaged regions will be formed. Children with disabilities will be able to attend regular school from the foundational stage and beyond with the support of educators with cross-disability training and technology-based tools.

**O. Technological Advancement:** Technology is now a parts & parcel of our daily life especially in the present COVID pandemic situation. The policy emphasizes on the extensive use of technology in teaching and learning, educational planning and management, removing language barriers and increasing access for Divyang students.

**P. Not for Profit Organization:** According to NEP, all educational institutions shall be held to similar principles of audit and disclosure as a 'not-for-profit' unit. If any institution generates a surplus, it shall be re-invested in the educational sector.

#### **Q. NEP & Technical Education in India**

The new National Educational Policy is going to bring wonderful transformation within technical education in India. Apart from technical education, this policy is going to instil a deep rooted pride in being Indian, however additionally in spirit, intellect, and deeds, in addition to broadening knowledge, skills, values, and tendencies that help accountable dedication to human rights, sustainable improvement and living, and worldwide well-being. AICTE is already determined towards the



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modifications in certain activities which as projected in the NEP 2020 since last few years by means of various initiatives and activities such as groundwork of 'Short & Medium Term' Perspective Plans for Engineering Education in India which focuses on the demand for courses on Artificial Intelligence (AI), Internet of Things (IoT), Machine Learning, Block Chain, Robotics, Quantum Computing, Data Sciences, Cyber Security, 3D Printing & Design and other emerging technological areas.

Regulatory bodies of technical education are receptive to the technological changes happening across the global scenario and believe in outlining new policies & initiatives and strengthening the existing ones by scheduling workshops, conferences etc. providing a platform of discussion and inputs from stakeholders. NEP 2020 brings out a mantra for a transparent and a robust system of governance with a vision to contribute to world class technological and socio economic development of the Country by enhancing the worldwide competitiveness of technical manpower.

#### • **Challenges & Suggestions:**

The success of a policy lies on its appropriate implementation. NEP 2020 brings a lot of opportunities to put our country in the frontier of education. But, few major challenges need to be overcome for its implementation. This section identifies some of the challenges regarding the implementation of NEP 2020 and some suggestions are proposed-

- A. *Curriculum and Content:*** India being a large country with large population and diversity presents endless varieties of physical features and cultural patterns. It is the land of many languages. So, developing a common curriculum in accordance with the National Curriculum Framework is a matter of challenge.

#### ***Suggestions:***

1. State wise-zone wise & central committees / bodies may be formed. State wise bodies would report to the zonal bodies regarding the local aspects, needs & mother tongue/ local languages. Then zonal bodies would frame a draft curriculum for the zone and send the same to the central body where the final curriculum & content may be framed.
2. Contents may be in association with the zonal/local climate, geography, needs etc. So that students can correlate their daily life with their studies.
3. Curriculum may contain monthly / quarterly visits to orphanage, old age homes etc. to inculcate the sense of humanity in students from the early age.
4. Provision for making projects, models etc within the campus may be encouraged and not to be given as home tasks.
5. Credit based extracurricular activity may be introduced.
6. Weekly seminar on art of living, inspiration, motivation, idea generation, new technology, entrepreneurship etc. may be incorporated from preparatory Stage.
7. As the input of higher education is the output of school education so a feedback system must be developed in between the two departments to improve school education curriculum structure time to time if and when required.

- B. *Teacher Availability and Training:*** A study suggests that over 250 million students are estimated to enroll in K-12 schools in India by 2030 and accordingly we need about 7 million more teachers. As one of the low-paid professions in India it is a challenging task to appoint well qualified and trained teachers on a large scale. Also, the motivation level of the teachers, as front warriors, should be high to raise our education system at par the global standards and beyond.

#### ***Suggestions:***

1. Teacher's salary may be reviewed for raising the sense of job satisfaction and to attract more talented graduates in to it. Teacher's salary regulatory body may be formed to design a common salary structure nationwide.
2. Teachers' ability in academic administration and ability in classroom teaching & research should be identified separately and workload should be distributed accordingly.
3. Quarterly teacher's training online / offline to be incorporated where evaluation of the teachers should be done.



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4. A teacher must undergo 3 to 4 weeks training on- Principles of Teaching-learning, classroom management, assessment criterion etc. at the time of appointment. The teacher should be allowed to join the job and take classes only if he/she successfully passes the training programme.
5. Teacher's performance to be evaluated half-yearly for getting increments or promotions. Students & parents feedback may be collected monthly / quarterly through online / offline.
6. Provision for academic incentive for teachers to be generated in the form of cash/award/research assistance etc.

**C. Technological Advancement:** The NEP 2020 lays emphasis on the advantage of technology in making the youth future-ready. In our country majority of the schools mainly in rural areas don't have a proper technological set-up and building digital infrastructure might not be affordable for these schools. According to Household Social Consumption on Education (2017-18), Ministry of Statistics and Programme Implementation, July 2020, only 4.4% of rural households have access to a computer (excludes smart phones), and nearly 15% have access to internet facility whereas in urban households, 42% have access to internet.

**Suggestions:**

1. Efforts to be taken so that Digital India Movement can reach every corner of the country.
2. Internet service provider giants like BSNL, Reliance Jio, Airtel etc. may be approached to provide free internet services in the schools & colleges of rural areas under Corporate Social Responsibility.
3. To eradicate digital illiteracy, training on effective use of different digital & online tools to be conducted among teachers and students.

**D. Examination Structure:** The NEP focuses on formative assessment for learning. NEP promotes continuous tracking of learning outcomes. But, deploying a continuous assessment structure is a challenging task in the schools. Lack of teachers makes the task more challenging.

**Suggestions:**

1. Adequate teachers have to be recruited having proper training on assessment tools.
  2. Practical based assessment should be encouraged.
  3. Digital assessment tools to be incorporated to make the process of assessment and documentation easier for the teachers.
- E. Funding:** Funding is the most important component for the implementation of the policy. This also requires greater public funding in higher education. Funding is a big challenge in this Covid situation.

**Suggestions:**

1. To become superpower in education, India must ensure to invest 6% of the GDP in the education sector.
2. Zone wise corporate giants to be identified and they may be fixed with the responsibility to contribute to the funding towards education sector in the respective zones.
3. Educational institutions (mostly private) need to offer more scholarships to make admissions possible for students from economically backward class.

**F. Attitude Change:** The current education system bears an impression of the British age. The change in attitude is a key to the successful implementation of NEP 2020. Current focus on healthcare and economic recovery due to pandemic situation would deplete the implementation speed.

**Suggestions:**

1. The stakeholders need to be properly sensitized through workshops regarding the vision of the policy. A clear understanding of necessity of this policy would evolve an inner drive among the stakeholders for its implementation.
2. Provision for appreciation for contribution to the implementation of NEP may be kept as a motivation factors for teachers and stakeholders.



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3. The corporate world needs to change their recruitment and grooming policies.

• **Conclusion:**

Education plays the most important role in deciding the economy, social status, technology adoption etc. of any country and it also sets the proper mindset of an individual. NEP 2020 is certainly showing us the light towards achieving such goals by addressing all the lacunas of earlier education policy and by making an effort to bring back the glory of our country as a leader of the World. We as an Indian have a task in our hand to contribute in the real sense to the development of our country. A collective effort from all corners would definitely show us the morning when India will again rise as the brightest star in the sky of knowledge.

• **References:**

1. Ranganathan, S. 2007. Educational Reform and Planning Challenge. Kanishka Publishers. New Delhi.
2. Report of the Education Commission 1964-66. Vol. 1. 1966. NCERT. Ministry of Education
3. Saikia, S. 1998. History of Education in India. Mani Manik Prakash Publishers.
4. Scharfe, Hartmut. 2002. Education in Ancient India. Brill Academic Publishers. New Delhi.
5. Singh, V.N. 2005. Education in India: From Earlier Times to Today. Vista International Publishing House. New Delhi
6. Aggarwal, J.C. 1993. Landmarks in the History of Modern Indian Education. Vikas Publishing House Pvt. Ltd. New Delhi.
7. Samarendranath Sen, Bigyaner Itihas, Vol-2. Sri. Goranga Press Pvt. Ltd., Kolkata-9.
8. Kochar, A. (2002). Emerging Challenges for Indian Education Policy. Economic Policy Reforms and the Indian Economy, 303-28.
9. High Level Strategic Group Report, India's New Opportunity-2020.
10. Kumar, K. (2005). Quality of Education at the Beginning of the 21st Century: Lessons from India. Indian Educational Review, 40(1), 3-28.
11. National Education Policy 2020. [https://www.mhrd.gov.in/sites/upload\\_files/mhrd/files/nep/Final\\_English.pdf](https://www.mhrd.gov.in/sites/upload_files/mhrd/files/nep/Final_English.pdf) referred on 10/08/2020.
12. India Skills Report 2019: <https://www.aicte-india.org>.
13. S. K. Saha, Engineering in India- Past, Present & Future, Shishu Sahitya Samsad P. Ltd. ISBN: 9788179551936, 8179551938.
14. G. D. Barnal, Itihase Bigyan, Ananda Publisher, ISBN: 978-8177564334.