STEM education and the role of digital learning: A new path way in NEP 2020

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Abstract

The advent of NEP was the need of the day and when in 2020 it was launched ,actually it was long due to change the Indian Education system and its foundation .Hence NEP with all its core deepened the roots in the Education system .But not just NEP but all the multiple factors that make this new policy that it is ,of which S.T.E.M(Science-Technology-Engineering-Mathematics) is one of them. Since ages we have seen and learnt and things have been scientifically proven that in depth learning from a very tender age can result in miracles but some how the then current educational system though believed in that but was not able to implement it. Now with the advent of this new NEP India is moving towards hope of better and more receptive youth for the betterment of the Nation.

Key words: NEP, Education, Development

INTRODUCTION:

Indian Education system is usually scrutinized by the students and parents more often. Students complain about this system that tests their memory but not intellect; while parents criticize about the system enhancing nothing but a rat race; teachers nag about students not communicable with the syllabus. But if we all look back into why we are educating the way we are and how we desperately are trying to adapt to the global trend, this noise vanishes.

We Indians are considered to be the inspiration of light, the epitome of learning since ancient times. Hence, to eradicate this noise we should understand how we got here. Unlike about what is speeded and said there was something very unique about the way education was taking place back here in India.

Just like how the supervisory, judiciary, and the government can't interfere with each other in their own daily affairs , Imparting

International Journal of Commerce and Management Studies (IJCAMS)
Peer Reviewed, Indexed Journal, ISSN 2456-3684
Vol.8, No.1, 2023, www.ijcams.com

education was also something that was a far from the sway of the state and society. Children had to stay in the Gurukul away from their families ,with teachers leaving their homes to attain knowledge. The teacher as guardian and caretaker took care of the children who came to become skilled at, under him by providing everything including food, clothing and shelter. Even there was no concept of fee collection.

The complete idea of education was focused on the enhancement of culture, development, and cultivation of noble ideals, development of character, and personality. The object was to attain Physical , mental and intellectual robustness, to make the students future-ready and survive in any situation.

It is said that real Knowledge is the supreme power, what's the actual role of education? Education has always been a very relative subject, between what students need and what a student desires to study. As well as it's enormously critical for education system to assist an individual so that he could find a significant place in society. Mere amassing of basic wisdom is of restricted practical use unless it is converted into innovations, provided that economic or social value are inculcated. It is hence the transfer of learned knowledge for fiscal growth that impacts society at large, which revolutionalises the globe.

In our education system, we have more than 265 million children in school (1-12 Grades), 35 million young adults studying in 1000+ Universities, 56000 colleges with a GER of 26%i.e, 8 million graduating youth every year making our country one of the hugest university systems on the earth, and hence no system has grown at this amount. We can call it Youth dividend of India.

The present facet of Education in the country is actually turning out to be a major "noiseless barrier" for India towards greater development. While all the interest is on social-political issues, things should change and it should quickly be turned on to educational reforms. Education has the power to all solve issues(corruption, waste management, wars, unemployment etc)fetching far ahead, and a mandate for a developing country like India it should not be ignored, Though India spends heavily on Education, the results aren't actually visible….

We need to totally refurbish the education system by focusing on work experience and expanding 21st-century needed skill set .

In the +2 scheme students with new NEP are allowed to study different subjects from any stream because in the 21st century no subject will survive in seclusion, it is greatly incorporated hence no limits of 'Stream' should exist. Students today need to develop a deep skillset to succeed in a world where computerization is only a click away. When they become contented working with others, philosophically identifying creatively, and express their ideas convincingly at an early age, they will pierce a world of brimming opportunities.

For example, biotechnology or behavioral economics, financial technologies , all are major forthcoming fields from varied subject specializations. A budge from the theoretical structure to a practical frame will definitely help the cause. It is understandable that in a big and diverse country like India , it is "easier said than done" but it should be on the apex of the government's bucket list. Miniature steps can be taken if the complete "revolution" seems unworkable.

When life faces challenges, it surely doesn't test your abilities to do maths, physics, chemistry, etc. Instead, it tests our abilities to handle the circumstances using the wisdom of these subjects; the conjectural base with the practicality of life. This becomes the pathway for **STEM education** that beholds its firm foot in the field of education to face the 21st-century population sail through life.

With the speedy change in market trends and the temperament of sought-after skills in the workforce, the education sector has introduced **STEM education, an contraction for well-known terms– Science, Technology, Engineering, and Mathematics.**

STEM-based education teaches children more than science and mathematics concepts. The focus on hands-on learning with real-world applications helps develop a variety of skill sets, including creativity and 21st-century skills.

21st-century skills comprise media and equipment literacy, yield, social skills, communiqué, suppleness and initiative. Other skills ensured through STEM education embrace problem solving, critical philosophy thinking, creativity, curiosity, decision making, headship, entrepreneurship, reception of failure and more. Apart from of the future profession

International Journal of Commerce and Management Studies (IJCAMS)
Peer Reviewed, Indexed Journal, ISSN 2456-3684
Vol.8, No.1, 2023, www.ijcams.com

path considered by students, these skill sets go a long way to guiding them to be innovative.

The Importance of Innovation

The aptitude to think critically and challenge standards is the base of innovation. pioneering thinkers are the movers and shakers that have the possibility to change the world scenario. Preparing today's students to turn out to be the innovators and inventors of tomorrow starts with STEM education programs. STEM education is vital to expand skills and concepts among the students. It pin points on skill-based knowledge unlike the customary methods of learning which were all ears on memorization techniques which makes the students seek employment in the companies and organizations.

Today's youth are existing through a scientific revolution. New advances in technology alterations the way they learn, which affects their complete lives. Traditional schooling can leave education gaps by making it difficult for children to appreciate the relations between what they are learning and how it relates to their day-to-day lives. STEM education inculcates observations and experiments that guarantee that there is no cut off in the understanding of concepts and real-world demonstration.

STEM : A digital breakthrough in the field of education:

Under the NEP 2020,STEM learning has become very easy and approachable in the updated curriculum.It will be great benefit to the society if as a whole varied group of scientists, engineers, and mathematicians will be strengthened with the introduction of STEM education at correct stages at various levels.Measures suggested by the new structure are as follows.

The new policy opts to encourage empirical learning. Learning objectives, and not rote learning, will be the focal point in the future.

1. *foundational essentials will become the focal point. Emphasis will be on key concepts, ideas, applications and problem-solving. Critical thinking and holistic, inquiry-based, discovery-based, discussion-based, and analysis-based learning will be the focus of NEP 2020.*

2. *Experiential learning and hands-on learning will play a big part in STEM education.*

3. *Introduction of subjects such as Artificial Intelligence (AI),Ecommerce and Design Thinking will be important for STEM.*

4. *An emphasis on Math, computational thinking, machine learning (ML), and data science will now begin at the foundational stage (at age 6).*

5. *Students will start learning coding at age 11[1].*

Thus, the multidisciplinary approach is the key for this new generation NEP, enhancing conceptual understanding capability and fostering skills such as critical thinking, hands-on training, and likewise.

The Ministry of Education's Innovation Cell under the directive of National Educational Policy 2020 (NEP) is now working for the ensurement of the educational viewpoint as the country is modernized and redesigned to give more prominence on the development of the innovation and creative prospective within each student. *Central board of Secondary Education(CBSE) along with Ministry of Education Cell has urbanized guidelines for* schools for endorsement of innovation and industrial skills in students titled *National Innovation and Entrepreneurship Promotion Policy[2]* .The goal being to hone students' skills through a holistic approach to be future ready.

Towards this, S.T.E.M-based education has become the must of the time. This scholarly pedagogy is focused on unadulterated learning through know-how. STEM fits perfectly with the goals set by the NEP of developing creative innovation, problem solving, team work, strategic thinking, entrepreneurial skills, and more. As such, educational institutions are now seeking help to set up dedicated STEM labs that are accustomed with the new focus on innovation-based learning over assessment taking.

Educational institutions and knowledge providers are now mandated to streamline themselves in a manner such that it can be made 'more receptive and relevant to the developmental requirements and welfare of learners at diverse stages of growth. Hence this curriculum will be guided by a 5+3+3+4 design, comprising a introductory, preparatory, middle and a secondary stage. This new permission also encourages a heightened aura in teacher morale and

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Vol.8, No.1, 2023, www.ijcams.com

collaboration with partner school and MSMEs.

Conclusion

Enhancing teacher training: STEM education courses at the pre-service level should be revised so that trainee teachers are more equipped when they are deployed in schools. That means STEM subject faculty in teacher education institutes must improve their teaching approaches and introduce courses that are in line with current thinking in these fields.

Faculty members in STEM topics must also participate in professional development programs to strengthen their competencies and stay current with the newest advancements in the world's premier teacher education institutes. Their research abilities must also be boosted. Parents wish for a bright future for their children. When a child feels confident, they are more likely to step out of their comfort zone and take risks. STEM education has been shown to improve students' academic performance and mental abilities, preparing them for success in college and beyond.

For Indians Stem is the need of the day.Indians are considered to be smart ,Critical thinkers but not innovators,this can be subsided by bringing about radical changes from grass root level via STEM education.but again only promoting STEM will create IITians who will eventually brain drain,Hence to absorb Indian Brains in India Practical oriented as well as open education like MOOCS at preliminary stage like std 6/7 th should be given a thought .Because we as nation definately have a lot of Engineers and Doctors but our brain is developed as working Class ,and to define the growth of a country it is not a sustainable attribute, Hence knowledge about Economics, Innovation, Business Acumen should be Developed from a tender age only. Critical ,Analytical thinking can only be developed if more stress is not given on theoretical Knowledge but Practical Know how. Today Indians need to develop a deep skill set to succeed in a world where computerization is only a click away. When we become comfortable working with others, thinking creatively, and expressing our ideas persuasively at an early age, we can and will enter a world of overflowing with opportunities. When life faces challenges, it doesn't test abilities of maths, physics, chemistry, etc. Instead, it tests our abilities to handle the circumstances using the wisdom of these subjects the conjectural

base with the practicality of life. Here STEM education/ boundlessness education establishes its firm foot in the field of education.

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