IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

NEP-2020 AND TECHNOLOGY ENABLED LEARNING: A STEP TOWARDS CO-ORDINATING RELEVANCE AND EXCELLENCE IN INDIAN HIGHER EDUCATION

[1] Dr. Kiran Deep, [2] Dr. Sunil Kumar

[1]Associate Professor (English), [2] Associate Professor (Botany)
Ch. Balluram Godara Govt. Girls College
Sriganganagar, Rajasthan, India

Abstract:The human society is undergoing rapid changes in the knowledge landscape. Keeping in view the role of education as an instrument for change, the National Education Policy -2020 (NEP- 2020) has been approved by the Government of India with a vision to rejuvenate Indian Education system in tune with this era of rapid changes and technological advancements in society. The present paper attempts to discuss the recommendations of NEP-2020 regarding use and integration of technology in Higher education to equip the teaching-learning paradigm for the needs of emerging Knowledge Society and knowledge-based global economy. Enunciating the digital initiatives of the Government for promoting Technology Enabled Learning (TEL) in Higher Education Institutions (HEIs), the paper aims to evaluate NEP-2020 as a step towards coordinating relevance and excellence in Indian Higher Education. Analyzing the role of National Educational Technology Forum (NETF) in shaping the future of technology enabled higher education in the country, the paper also discusses initiatives suggested in NEP-2020 to address the challenges in promotion of TEL in Indian context.

Key Words - National Education Policy (NEP-2020), Technology Enabled Learning (TEL), Knowledge-Driven Society,National Educational Technology Forum (NETF)

I. INTRODUCTION

Since time immemorial, the human society is continuously and consistently evolving, progressing in terms of augmenting its resources, strengthening them and channelizing their wise use for making life a pleasurable experience. In this pursuit of progress and prosperity in every sphere of life, knowledge and information have always been the guiding stars for the human society in its journey to feel the pulse of the time, to work upon well-thought-out strategies to address the need of the time. The same is evident in the revolutionary changes in the form of progression of society from foraging to farming and from farming to Industrialization. A meticulous analysis of the radical changes brought by Industrial Revolution since mid-eighteenth century reveals that progress and prosperity of society and economy is connected with the rapid and unprecedented acceleration in the development and management of knowledge. The capability of a country to use and create knowledge capital determines its capacity to empower and enables its citizens to make the best use of their prowess for social and economic growth of the country.

Knowledge being the prime engine of development, it becomes imperative for a country to upgrade its educational framework to foster vital learning skills to move hand in hand with the changes in the fields of science, technology and economy. New Education Policy-2020 is a commendable step for upgrading and updating the educational framework in India with integration of technology in all levels of education for strengthening the knowledge management system by increasing access to educational resources, creation of relevant learning experiences, and augmenting student-centred learning.

II. Waves of Change: Rise of Knowledge-Driven Society

In this era of unprecedented technological advancements, the success of economy and society are now directly linked with the development and management of knowledge. Eminent scholars like Peter Drucker and Alvin Toffler discussed deliberately at length the future of the developed and developing countries will be defined by the exploitation of knowledge and information. To quote Peter Drucker "Since ancient times, new knowledge and new inventions have periodically remade human societies. Today, however, knowledge is assuming greater importance than ever before; Now more essential to the wealth of nations than either capital or labour" (1). The innovation, creation and dissemination of knowledge has become a deciding factor for transformation of the self, the society and the economy. Passing through different phases of development, the life on earth has changed with the industrial revolutions that appeared as a result of developing science, technology, and community culture. The first industrial revolution passed through the introduction of mechanical production facilities powered by water and steam and the second one dealt with the electrical energy. While the third industrial revolution was characterized by applying automated production using electronics and information technology. At present the human society is moving ahead to accommodate the fourth industrial revolution which is defined briefly as the vital interaction between human and machines in the form of Artificial Intelligence. In this fourth phase of Industrial revolution, the Industrial Revolution (IR) 4.0 technology is predicted to deeply affect the 2030 Sustainable Development Goals such as good health, clean water and sanitation, clean energy, sustainable cities, climate action. The upshot of IR 4.0 Technologies in the academic corridors is termed as Educational Revolution 4.0 as explained by Anthony Seldon in his book, The *Education Revolution: Will Artificial Intelligence Liberate or Infantilise Humanity*.

III. Education in Knowledge-Driven Society: Re-configuration of the Teaching-Learning Paradigm

As the world we inhibit is changing to embrace 'tech futures', the contents as well as methods of content-delivery which are part and parcel of the educational framework designed for the young minds also need to be reshaped to keep up to date with growing demands of knowledge society and knowledge-based economy. Now the students do not need to learn only how to adapt to the system, they also need to, learn how to look at it with a critical mind and how to imagine better alternatives. Emphasizing the co-ordination of relevance and excellence in education system in the present context, NEP-2020 Report asserts at the very outset,

> Various dramatic scientific and technological advance such as the rise of big data, machine learning and artificial intelligence, many unskilled jobs worldwide may be taken over by machines, while the need for a skilled workforce, particularly involving mathematics, computer and data science in conjunction with multidisciplinary abilities across the sciences, social sciences and humanities will be increasingly in greater demand. (NEP- 2020,3)

The reports of World Economic Forum (2018) stated that 65% of the students in school today will work in jobs that do not currently exist and 47% of today's jobs will be automated in the next decade. More than 50% of the content in a graduate degree will be useless in 5 years. These alarming data make the academia think more meticulously to look for new avenues to ensure quantitative and qualitative learning that helps the students to face the future. Now Education 4.0 can be seen as new paradigm which reinterprets the concepts as learning, student, teacher and school according to needs of Industry 4.0 in Knowledge Based Society. Prior to this, Education 1.0 had been designed to meet the needs of agricultural society. Knowledge was used to be transferred from teacher to student and students focused on teacher's explanations. Education 2.0 appeared to meets the needs of industrial society. Later, Education 3.0 has evolved education to meet the needs of society by taking advantage of technology. According to an eminent educationist Puncreobutr, Education 4.0, developed at the beginnings of 21st century is expected to meet needs of innovation age. Students are expected to produce and adapt new Technologies which will contribute development of societies in this process (qtd in Himmetoğlu et all, 1). Teachers in Education 4.0 are defined as everybody, everywhere and seen as innovation producing sources. It is need of the day that pedagogy must evolve to make education learner-centred, more experiential, holistic, inquiry-driven and discovery-oriented. The integration of technology into education facilitates the students in building the competencies they need for future; it facilitates the teacher to customize learning and create varying levels of scaffold support rather than to merely follow a one-size-fits-all approach in instruction.

IV. "Change the Way We Educate": Promotion of Technology Enabled Learning in Indian Higher Education and NEP-2020

Higher Education System as the fulcrum of the generation, dissemination and application of knowledge plays pivotal role in cultivating creative and critical thinking, providing training for professional technical and managerial skills to equip the youth of a nation with skill to address the changes and the challenges in every sphere of life. New Education Policy -2020 (NEP-2020) has been approved by Government of India with a vision to rejuvenate Indian Higher Education system in tune with Goal 4 of the UN Sustainable Development Goal (SDG 4) which "seeks to ensure inclusive and equitable quality education and promote life-long opportunities for all" 2030. For creating a knowledge-based society, now India moving ahead for creating multi-skilled employability avenues. The NEP-2020 identifies the potential of new technologies such as Artificial Intelligence, block-chain, machine learning, smart boards, adaptive computer testing etc. in bringing transformation not only in what the student learn but also how they learn. Acknowledging the great impact of Artificial Intelligence on Education System, the NEP-2020 states,

This Policy has been formulated at a time when an unquestionably disruptive technology, Artificial Intelligence (AI), 3D/7D virtual Reality has emerged. As the cost of AI-based prediction falls, AI will be able to match or outperform _ and therefor be a valuable aid to_ even skilled professionals such as doctors in certain predictive tasks. AI's disruptive potential in the workplace is clear and the education system must be poised to respond quickly" (NEP-2020. 23-8, 57)

No doubt, new circumstances and new realities requires new initiatives. The unprecedented spread of COVID -19 and concomitant lockdown and change in educational framework necessitates that we can manage the alternative modes of providing quality education where ever traditional and in-person modes of education are not possible. In 2015, the Government of India launched a flagship programme Digital India with a vision to transform India into a digitally empowered society and knowledge economy. No doubt technology is going to impact education in multiple ways, only some of which can be foreseen the way digital initiatives of the government are implemented in Higher education in the form of MOOCS, Portals for Online Educational resources. These initiatives have been launched as flagship projects under National Mission on Education through ICT (NMEICT) which has been envisaged as a Centrally Sponsored Scheme to leverage the potential of ICT, in teaching and learning process for the benefit of all the learners in Higher Education Institutions in any time anywhere mode. The projects under this scheme are designed for

- Connectivity, along with provision for access devices, to institutions and learners;
- Content generation.

This scheme plans to focus on appropriate pedagogy for e-learning, providing facility of performing experiments through virtual laboratories, on-line testing and certification, on-line availability of teachers to guide and mentor learners, utilization of available Education Satellite and Direct to Home platforms, training and empowerment of teachers to effectively use the new method of teaching learning etc. The details about some of the flagship projects for digital education are as given below:

Table -1: Digital Initiatives in Education System by the Government of India under NMEICT

Flagship Projects for Digital Education Under NMEICT		
Sr. No.	Resource	Facilities for Learners
Audio-Video E-Content		
1.	SWAYAM(Study Web of Active learning for Young Aspiring Minds)	Massive Open Online Courses
2.	SWAYAMPRABHA	High quality educational programs 24*7 on TV
Digital Content: Access Journals and e-books		
1.	National Digital Library (NDL)	Access e-content on multiple disciplines
2.	e-PG Pathshala	Get free books and curriculum-based e-content
3.	Shodhganga	Access Research Theses of scholars of Indian Institutes
4.	e-Shodhsindhu	Get access to full text e-resources
Accelerated Hands on Learning		
1.	e-Yantra: Engineering for better tomorrow	Get hands on experience on embedded systems
2.	FOSSEE: Free/Libre and Open Source Software for Education	- Access and volunteer for the use of open-source software - Become FOSSEE fellow
3.	Spoken Tutorial: Tutorial in IT application	Self-training in IT fields
4.	Virtual Labs: Web-enabled experiments designed for remote – operation	Try curriculum based virtual experiments
5.	National Internship Portal	Internships for students & fresh Engineers
6.	National Educational Alliance for Technology	Portal developed for the learners

Source: - https://www.education.gov.in/ict-initiatives

PM-e-Vidya is also a very useful project which houses online courses created by top hundred universities of India . It also offers e-contents and QR coded books. Transformation in digital landscape has enabled institutions to integrate technology in a wide array of teaching-learning activities e.g., online examination process in institutions like IIMs, AIMA, Ashoka University, Creation and Use of Artificial Intelligence enabled chatbot ALBELA by IIT, Guwahati. Rise of artificial intelligence applications has been phenomenal in Robotics. Higher Education Institutions (HEIs) will play an active role not only in conducting research on disruptive technologies but also in creating initial versions of instructional materials and

courses including online courses in cutting-edge domains and assessing their impact on specific areas such as professional education.

V. NEP-2020 and Promotion of Technology Enabled Learning: Initiatives to Meet the Challenges

To remain relevant in the fast-changing field of educational technology, the NEP-2020 recommends the creation of "National Educational Technology Forum (NETF) to maintain a regular inflow of authentic data from multiple sources including educational technology innovators and practitioners and will engage with a diverse set of researchers to analyze the data. To support the development of a vibrant body of knowledge and practice, the NETF will organize multiple regional and national conferences, workshops, etc. to solicit inputs from national and international educational technology researchers, entrepreneurs, and practitioners.

"The thrust of technological interventions will be for the purposes 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 admissions, attendance, assessments, etc." (NEP-2020,23.5)

In the para 23.7 of the NEP-2020, it is stated that particular attention will need to be paid to emerging disruptive technologies that will necessarily transform the education system. When the 1986/1992 National Policy on Education was formulated, it was difficult to predict the disruptive effect that the internet would have brought. Our present education system's inability to cope with these rapid and disruptive changes places us individually and nationally at a perilous disadvantage in an increasingly competitive world. For example, while computers have largely surpassed humans in leveraging factual and procedural knowledge, our education at all levels excessively burdens students with such knowledge at the expense of developing their higher-order competencies.

Acknowledging its potential risks and dangers, the NEP-2020 recognizes the importance of leveraging the advantages of technology and calls for rigorous and transparent evaluation of these technological interventions in educational framework in relevant context. The Policy recommends "National Educational Technology Forum (NETF) as a platform for the free exchange of ideas on the use of technology to enhance learning, assessment, planning, administration and so no" (NEP-2020, para 23.3,56). The functions of NETF as explained in NEP-2020 are as follow:

a) Provide independent evidence-based advice to central and state government agencies on technology-based interventions
b) Build intellectual and institutional capacities in educational technology
c) Envision strategic thrust areas in this domain; and
d) Articulate new directions for research and innovation.

The NETF would facilitate induction, deployment and effective management of technology in education. With the objectives of synchronizing with the emergence of digital technologies and the emerging importance of leveraging technology for teaching-learning at all levels from school to higher education, NEP-2020 recommends following initiatives which are enlisted in para 24.4 of NEP-2020: -

- Pilot studies for online education to evaluate the benefits of integrating education with online education while mitigating the downsides.
- Digital infrastructure to ensure that the technology-based solutions do not become outdated with the rapid advances in technology.
- Online teaching platform such as SWAYAM will be extended to provide teachers with a structured, user-friendly, rich set of assistive tools for monitoring progress of learners.
- Creation of a digital repository of content including creation of coursework, Learning Games & Simulations, Augmented Reality and Virtual Reality. 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.
- Addressing the digital divide, the existing mass media, such as television, radio, and community radio will be extensively used for telecast and broadcasts.
- Training and incentives for teachers to work upon learner-centric pedagogy and on how to become high-quality online content creators themselves using online teaching platforms and tools.
- Emphasis on adoption of Blended models of learning to enable learning environment for optimal learning

VI. Conclusion: -There is no denying the fact that the integration of technology in education to foster life-long learning is need of the day. The emerging knowledge society is looking for the people who are able to maximise their creative potential, the people who not only master existing skills and knowledge, but who are capable of creating new skills and knowledge. The government of India is keen to promote TEL to make higher education accessible to all deserving students as it is evident in the recommendation of NEP-2020. The success of these plans and recommendation lies in the way the efforts for execution are made, the way the challenges are handled, the way awareness is created among students as well teaching fraternity. Every new initiative taken in the direction of integrating technology in education should aim atco-ordinating excellence and relevance, maintaininga balance between the quality i.e., the intellectual and educational mission of higher education and therelevance i.e., the social function of higher education for a progressive society.

VII. Acknowledgements: The authors of this article express deep sense of gratitude to all the resources both individual as well as institutional in the subject area, which helped a lot to get a deep understandingof the subject matter.

VIII. REFERENCES

[1] Drucker, P. F. (1993). "The Rise of the Knowledge Society". *The Wilson Quarterly*, *17*(2), 52+. https://link.gale.com/apps/doc/A13905270/LitRC?u=googlescholar&sid=bookmark-LitRC&xid=7566f0e6

[2] Himmetoğlu, Beyza & Ayduğ, Damla & Bayrak, Coşkun. (2020). "Education 4.0: Defining the Teacher, the Student, and the School Manager Aspects of the Revolution". *Turkish Online Journal of Distance Education*. 21. 10.17718/tojde.770896. https://www.researchgate.net/publication/343017706_EDUCATION_40_DEFINING_THE_TEACHER_THE_STUDENT_AND_THE_SCHOOL_MANAGER_ASPECTS_OF_THE_REVOLUTION

[3] Ministry of Education. (2022). *National Education Policy-2020*.

https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf

[4] Puncreobutr, V. (2016). "Education 4.0: New Challenge of Learning". *St. Theresa Journal of Humanities and Social Sciences* ,2(2),92-97
https://journal.stic.ac.th/index.php/sjhs/issue/archive