ISSN–2278-5655

AMIERJ

AARHAT MULTIDISCIPLINARY INTERNATIONAL EDUCATION RESEARCH JOURNAL

Volume–X, Issues– II Jan –Feb 2021

TECHNOLOGY INTEGRATION THROUGH NATIONAL EDUCATION POLICY 2020: IMPLEMENTATION OF BLENDED LEARNING FOR EQUITABLE QUALITY EDUCATION

[1]Noor Aisha

Research Scholar, STRIDE, Indira Gandhi National Open University, New Delhi, India

&

[2]Amiteshwar Ratra

Associate Professor, STRIDE, Indira Gandhi National Open University, New Delhi, India

Abstract

India foresees the transformational reforms in its education system through its new National Education Policy (NEP, 2020), which highlights the requirements of holistic, multidisciplinary and futuristic education through technology integration. NEP 2020 focusses on ensuring increased use of technology to bring about possibilities for equitable quality education. This paper comprises descriptive analysis with a qualitative approach to review the policy reforms with respect to technology integration in the new NEP 2020. Thus, the paper describes the implications of NEP 2020 with respect to innovations for technology integration into education at various levels and presents a brief comparison of new NEP 2020 and the previous policy on education (1986, modified in 1992) on the basis of technology integration. It also highlights major thrusts areas for the implementation of blended learning in Indian contexts to bring about equitable quality education. Also, various researches on technology integration and its considerations in NEP 2020 for the effective implementation of blended learning in Indian contexts to bring about equitable quality education are presented in this paper.

Keywords: *National Education Policy 2020, Technology integration, blended learning, quality education.*

ISSN–2278-5655

AMIERJ

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Volume–X, Issues– II Jan –Feb 2021

Introduction

The National Education Policy (2020) envisions to transform to a new education system for India by 2030 by framing comprehensive changes in the elementary, secondary & senior secondary, higher as well as professional & vocational education and research. The new National Education Policy takes into consideration various reforms and initiatives which include the great emphasis on technology integration into education. NEP (2020) puts forward many policy changes when it comes to technology integration. NEP (2020) is the education policy that envisions to transform the future generation of India (Kumar et al., 2020), inculcate 21st century skills, and aim towards the rising developmental imperatives of India which is aligned to the 2030 Agenda for Sustainable Development. In accordance with the same, institutions have been directed by the University Grants Commission (UGC) to implement these technological interventions besides spreading the awareness (Nandini, 2020).

As NEP (2020) lays tremendous emphasis on the use of technology and has replaced the previous education policy which was formulated in 1986 (further modified in 1992), it raises the questions why to talk so much of technology integration and its need & importance in education? The answer is present in the previous researches, that the whole learning process is revolutionized when technology integration into the curriculum takes place (Turugare & Rudhumbu, 2020). When technology is integrated into the curriculum, it tends to improve students' learning processes as well as learning outcomes (Jhurree, 2005). When teachers recognize the potential of computers as problem-solving tools, a metamorphosis takes place in the way they teach. Moreover, the Covid-19 pandemic has made the stakeholders of education depend largely on the technology. However, Indian education system faces the challenge of digital divide. Though ‘technology integration’ was not ignored earlier also, but the pandemic has made the stakeholders and the policymakers realize again that the need to integrate technology at the earliest is indispensable.

Thus, the paper intends to attain the following objectives-

- describe implications of NEP 2020 with respect to innovations for technology integration into education at various levels;
- compare the new NEP 2020 with the previous education policy of 1986, on the basis of technology integration;

ISSN–2278-5655

AMIERJ

AARHAT MULTIDISCIPLINARY INTERNATIONAL EDUCATION RESEARCH JOURNAL

Volume–X, Issues– II Jan –Feb 2021

- discuss various policy highlights on other major thrust areas for the implementation of blended learning in NEP 2020.

Methodology

The methodology of this paper is descriptive analysis with a qualitative approach to review the policy reforms with respect to technology integration in the new National Policy on Education. Thus, the paper with a motive to spread awareness, describes the implications of NEP 2020 with respect to innovations for technology integration into education and the major thrusts areas of technology integration at various levels and presents a brief comparison of new NEP 2020 and the previous policy on education (1986, modified in 1992) on the basis of technology integration. Further, it highlights the major thrust areas for the implementation of blended learning in Indian contexts to bring about equitable quality education.

Implications of NEP 2020 with respect to Innovations for Technology Integration into Education

Our country now has a new National Education Policy (NEP, 2020). It provides a comprehensive framework for primary education through higher education, as well as for vocational and technical education. It also provides a new paradigm for e-learning. Access, equity, affordability, accountability, and quality have been propounded as the five foundational pillars of the new policy, and considered imperative for establishing a new education system of India and to achieve the sustainable development goals laid down by the United Nations for 2030. NEP (2020) puts forward many policy changes from early childhood education through higher as well as professional & vocational education and research with respect to technology integration. The major implications for technology integration at various levels are:

(i) School Education

- NEP (2020) envisages instilling foundational literacy and numeracy as a prerequisite to learning with technological interventions at foundational learning.
- Digital Infrastructure for Knowledge Sharing (DIKSHA), a national repository of quality e-resources on foundational literacy and numeracy will be provided.
- Digital libraries will be established for students at all levels.
- Use of assistive devices and technology-based appropriate tools to be provided for children with disabilities.

ISSN–2278-5655

AMIERJ

AARHAT MULTIDISCIPLINARY INTERNATIONAL EDUCATION RESEARCH JOURNAL

Volume–X, Issues– II Jan –Feb 2021

- Orientation of parents/caregivers will be provided along with wide-scale dissemination of learning materials.
- Technology-based solutions will be provided to the parents of CWSN to support their children's learning needs.
- Technology-based flexible curricula will be developed to enable the children to work at their own pace for developing their strengths and for appropriate assessment.
- National Assessment Centre (PARAKH), a digital examination platform, will formulate guidelines and conduct assessments at all levels i.e., from the foundational stage to higher education, including the entrance exams.
- Extensive use of technology will be promoted in the entire teaching-learning process; measures taken for removal of language barriers; access for the children with special needs will be enhanced, and technology integration will be focussed upon in education planning as well as management.
- To increase the access to education, schools will be digitally equipped, virtual labs will be set up and the use of educational software will be promoted.

(ii) Higher Education

- The National Educational Technology Forum (NETF) to be set up as an autonomous body for enhancing both school and higher education systems.
- New instructional materials and courses including the online courses will be created by HEIs and research conducted on disruptive technologies and cutting-edge areas.
- For skilling the employees to use disruptive technologies, institutions may collaborate with institutional and non-institutional partners to deliver the training.
- Ph.D and Masters programmes will be offered in multidisciplinary fields and professional areas including the core areas such as Artificial learning and Machine Learning.
- Online courses in multi-disciplinary areas will be developed and disseminated via platforms such as SWAYAM.
- Undergraduate and vocational programmes will be offered in blended format.

- Educational approaches that will integrate Science, Technology, Engineering and Mathematics (STEM) with humanities and arts in undergraduate education will be explored and furthered.

(iii) ***Professional/Technical/Vocational Education***

- Developing 21st century capabilities through a holistic multi-disciplinary approach of education through all undergraduate programmes, including the professional, technical, and vocational disciplines will be a thrust area.
- Professional education will be imparted in cutting-edge domains through online courses.
- Possibilities of offering vocational courses through ODL mode will be explored.
- Professionals will be prepared in agriculture and veterinary sciences through integrated programmes linked to technologies and practices.
- Agricultural Technology Parks will be set up for the promotion of sustainable methodologies.
- Technologies will be integrated into Legal education to increase access and timely justice and for enhancing global competitiveness.
- Professionals will be prepared in the cutting-edge fields; technical education will be provided within multidisciplinary education institutions, and programmes will have an influence of technology.

(iv) Teacher Education and Continuing Professional Development of Teachers

- Subject-wise teacher vacancies will be assessed and forecasted through a technology-based comprehensive teacher-requirement planning exercise.
- Digital Infrastructure for Knowledge Sharing (DIKSHA) platform, as well as various technological interventions will be provided to serve as aids to teachers.
- All B.Ed programmes will incorporate most recent techniques of educational technology in pedagogy, for collaborative and learner-centered learning.
- Technology-based education platforms, such as DIKSHA/SWAYAM, for Teacher ’s Professional Development involving online training of teachers through e-content will be integrated across school and higher education
- Online Platforms will be developed for providing Continuous Professional Development

*(*CPD) opportunities to teachers.

- To further prepare the teachers to teach the children with special needs, special education programmes will be offered in blended formats.

***(v) Open & Distance Learning* (ODL)**

- High-quality online courses will be developed by top accredited ODL institutions, which would be integrated to the curricula of Higher Education Institutions to offer various courses in Blended mode.
- Accredited ODL institutions will offer B.Ed programmes in ODL or blended format.
- Modalities for offering vocational courses through ODL mode will be explored.
- Learning materials will be made accessible and available to the disadvantaged, underprivileged learners and learners with disabilities for increased access, equity, and inclusion through online education, and Open & Distance Learning (ODL).

(vi) Adult Education & Lifelong Learning

- Innovative initiatives will be taken for adult education through integration of technology to accelerate the aim of achieving 100% literacy.
- Lifelong learning opportunities will be provided through ODL and Online programmes to enhance & improve the access, and to increase GER.
- For enhancing the quality of adult education, technology-based options like apps, online courses, TV channels, e-books, etc. will be provided
- ICT-equipped public library, or spaces such as Adult Education Centres for adult education courses will be made available
- Adult education programmes will be provided through online or blended mode.
- To create synergy Adult Education Centres (AECs) will be included with other vocational and Higher Education Institutions.

(vii) *Research*

- NEP 2020 envisions outstanding research as a corequisite for quality education and development.
- Multi-disciplinary and cross-disciplinary research across the fields will be encouraged to enhance quality in research.

ISSN–2278-5655

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- National Research Foundation (NRF) will be established to initiate or expand research efforts in the field of technology.
- National Educational Technology Forum (NETF) will be established to promote research and articulate new directions for research and innovation.
- Research on the new disruptive technologies such as artificial intelligence, machine learning, etc., considering both the technological as well as the educational aspects, will be encouraged.
- To take inputs from national and international experts/practitioners on the integration of technological aspects as well as the disruptive technologies, various conferences, workshops, etc. will be organised by NETF.
- For encouraging interdisciplinary research and increased industry-academic linkages, incubation centres, technology development centres, etc. will also be established.

Comparison of NEP 1986 and NEP 2020 on the basis of Technology Integration

NEP 1986: The National Policy on Education (1986) focused largely on issues of access, equity and quality education to remove the disparities. The major development of the 1986 policy was the focus on the Right of all Children of our country for a Free and Compulsory Education, which got concretized in the form of the *Right to Education* (RTE) - Act 2009. This Act laid down legal foundations for achieving universal elementary education for all children in India. The policy was modified in 1992 to encourage the participation in technical and professional programmes in the country. However, at that time when National Education Policy 1986 (1992) was formulated, the *Information and Communication Technologies* (ICTs) and the internet were beyond the horizon of thought to integrate it into education and recognise its latent disruptive effect on education.

NEP 2020: The National Education Policy (2020) has been formulated at a time when disruptive technologies such as *Artificial Intelligence* (AI), machine learning and 3-D & 7-D virtual reality, etc. have emerged and are being integrated into the education globally. The potential of disruptive technologies in the education system is clear and it becomes a necessity to respond quickly in this increasingly competitive world. The NEP (2020) advocates more use of technology in education with an aim to inculcate the 21st century skills in the learners and to improve various aspects of education. NEP (2020) largely focusses and encourages the

ISSN–2278-5655
AMIERJ
AARHAT MULTIDISCIPLINARY INTERNATIONAL EDUCATION RESEARCH JOURNAL
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efforts to integrate the cutting-edge areas and the emerging disruptive technologies with a multidisciplinary approach in order to transform our education system, and to empower the educators of India.

Implementation of Blended Learning in India through NEP 2020

National Education Policy (2020) elaborately documents its planning to implement technology integrated education in the education system in the country at all the levels. To make technology integration in education more beneficial to learners and feasible for its implementation NEP, 2020, the thrust of the new National Education Policy is on adoption of Blended learning (NEP, 2020). According to educationists and researchers, blended learning practices need to be considered for addressing the issues of equitable use of technology and providing quality education (Panditrao & Panditrao, 2020). The adoption and implementation of blended learning models in Indian educational institutions can provide the enhanced learning experiences to the learners as per the learners' needs and the subject requirements. Blended learning uses a combination of classroom learning with online learning (Turugare, M. & Rudhumbu, N., 2020).

Blended learning can achieve its purpose successfully when it is based on pedagogical concepts (Edanur & Marie S., 2017), together with fulfilment of capable faculty requirements and proper infrastructural needs of institutions, along with policy directions.

According to Edanur & Marie S., (2017)

> *"Blended Learning Programmes thus increase the options for greater quality and quantity of human interaction in a learning environment. It integrates both conventional method of teaching and technologies which support social interactions."* (Edanur & Marie S., 2017, p. 34).

NEP 2020 envisions that the use of recorded lectures and digitalised learning materials and their dissemination digitally for bringing about vitality and ease of use with flexibility, along with chat sessions and tutorials, will enrich the instructions and thereby will enhance the learning process. NEP 2020 focusses on the use of *Massive Open Online Courses* (MOOCs), to encourage the teachers as well as learners to increase their involvement. NEP 2020 envisages various prominent institutions to conduct pilot studies to initiate various online programmes and to offer them in blended formats by modifying and redesigning the existing

programmes and by integrating relevant online courses with the already running traditional courses. NEP 2020 also urges to experiment and explore possibilities of online under graduate courses. The areas that NEP 2020 focusses upon are the development and use of e-resources, and technological interventions in course-based activities, delivery and evaluation process. A thrust area of the policy is curriculum redesign to adopt blended formats with multidisciplinary approach in order to provide flexibility and to facilitate the learners to follow their interests/passion in higher education with easy entry and exist options with specified policy/norms.

The modalities envisioned in NEP 2020 for an extended outreach to the learners include the mobile Apps, TV channels, augmented reality and games. To enhance learning, availability of courses in Indian regional languages; online dissemination of the course content through Facebook sessions etc.; and online counselling sessions have been focussed upon. Also, institutions are directed to prepare integrated regulations for ODL and online programmes. Flexibility at the institution level and across institutions, considering credit transfers and credit repositories, is an area of emphasis in the policy.

The challenges of technology integration and implementation of blended learning are based on the readiness of institutions in terms of ICT infrastructure and technical support, readiness of faculty in terms of gadgets and technical support, readiness of students to adapt and library readiness for remote access. Readiness at all these levels, as well as collaboration among all the resources and facilities is essential for successful implementation of blended learning in Indian educational institutions and for provision of equitable quality education at the nationwide level. The challenges also include perceptions of Blended Learning in terms of interactivity in classroom, knowledge creation, content knowledge, technology benefits, and overall satisfaction (Edanur & Marie S., 2017).

Conclusion

NEP (2020) considers a bi-directional relationship between technology and education at all levels. Education plays a critical role in the transformation of any nation, and technology is very crucial for the improvement of teaching-learning process and the learning outcomes. It has been importantly realised in NEP (2020) that educational technology by various means has the potential of adequately addressing the concerns of quality, access, equity and inclusion in

education.

There are a multitude of benefits of online/digital education that cannot be ignored, but the digital divide has been a major concern for India, which needs to be addressed at the earliest to achieve the goals set by NEP 2020. Blended learning partially depends on technology integration and has various models which have the proven potential to deal with the heterogeneity among the various learners of different demographic regions while following the same curriculum of a course. Hence, implementation of blended learning in Indian contexts has the potential of providing equitable quality education to all the learners and to help them in developing the 21st century's critical skills, capacities and competencies. The potential, duly recognized and emphasized in NEP (2020), needs to be translated into reality at the field level through ways and means articulated in the Policy, so that all the learners in India can have greater access to quality education in the true sense, better participation, enhanced learning experiences, and improved learning outcomes.

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