



शोध भूमि

शिक्षा एवं शिक्षण शास्त्र विषय की पूर्व समीक्षित शोध पत्रिका

The Emerging Trends of Digital Education for Prospective Teachers in the Present Scenario

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Abstract

The 21st century is the era of digitalisation in every sector, especially in educational institutions. The use of technology is not new, but its need and demand have been growing in recent times for quality education. It is true that technology is not a choice; it has become a compulsion. The National Education Policy 2020 addressed the important role of technology for improving multiple aspects of education, also quoted in “Extensive use of technology in teaching learning process. The objective of this study is to explore the emerging trends of Digital education that are shaping the preparation of prospective teachers in the current scenario. The study is conducted entirely based on the documentary method. The importance of digitalisation, particularly in information and communication technology, in education is increasingly being recognised in policy development. The National Education Policy 2020 has emphasised the re-establishment of

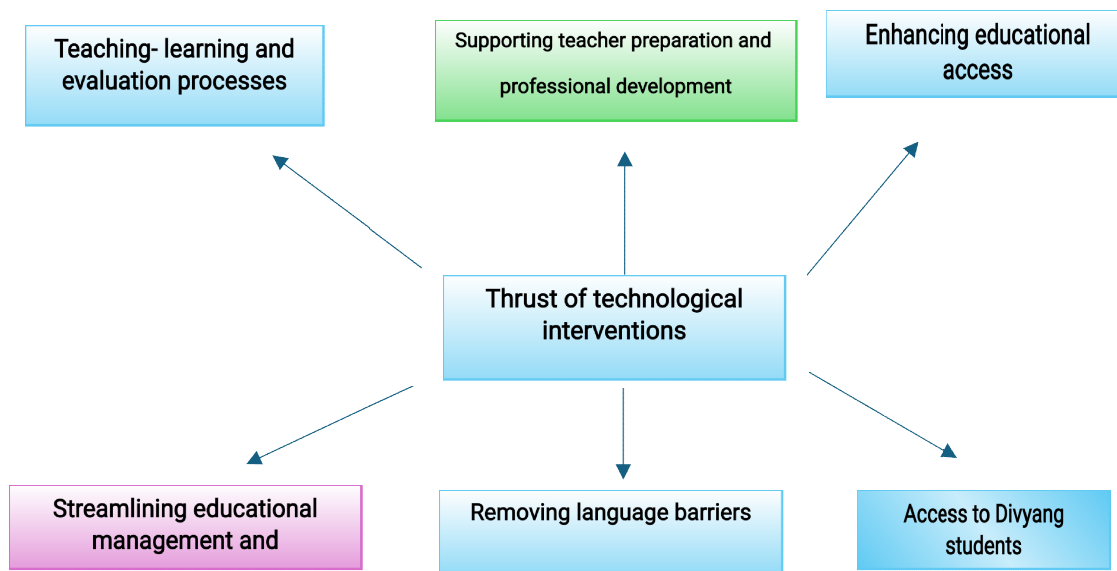
teachers at different levels of education; hence, the Government of India continues to develop initiatives like SWAYAM, DIKSHA, and NISTHA for the professional development of teachers and encourages a large number of teachers to undertake quality online training programs. In this regard, for the better implementation of policy recommendations, prospective teachers should develop their awareness and perspectives on digital learning.

Keywords: *Emerging Trends, Digital Education, Prospective Teachers, NEP 2020*

Introduction: The globe is moving towards digitalization in every sphere of society. The importance of Information and communication technology in education is becoming increasingly important for Quality education. The progress of any nation depends on the quality of the education system that is running in the country. In India, one of the most important and comprehensive education policies in present time is National Education Policy 2020, which addresses the important role of technology for improving multiple aspects of education. The policy stated that “*envisioning an India-centred education system that contributes directly to transforming our nation sustainably into an equitable and vibrant knowledge society by providing high-quality education to all*”. The NEP 2020 mentions ‘Extensive use of technology in technology in teaching and learning. When students can easily access learning materials, it fosters a learn-focused and cooperative educational approach, while also strengthening students abilities in critical thinking, creativity and effective problem solving.

The National Curriculum Framework 2005 mentions that the role of the teacher has shifted from the traditional teaching role to the of a guide and facilitator, wherein teachers assist students in constructing knowledge. The excellence of the teaching-learning process is based on how teachers deliver the knowledge and information to students. The scope of technology in Teacher Education is enhancing the pedagogical process, creativity in work, quality enhancement, propagation of connections to the pupils in a systematic manner, improving teachers’ effectiveness, making the learning process easy and interesting, etc. therefore, the present scenario needs and demands that

teachers be techno-friendly to better communicate clearly with students and stimulate them to learn, think, and act wisely. The teacher-training institute should also teach prospective teachers to use and integrate technology in education and online and digital education, ensuring equitable use of technology, and mention different digital trends for quality education to future generations.



Source: [NEP_2020_CIET_Behera.pdf](#) (Self-complied)

In response to the dynamic demands and emerging challenges of education, the National Education Policy 2020 emphasizes the strategic integration of emerging technologies to enhance teacher preparation and professional development. The policy envisions leveraging digital platforms and technological tools to

- Improve teaching-learning and assessment processes in the classroom.
- Strengthen teachers training and continue professional development, expand access to education, and streamline administrative functions such as admission, attendance, and evaluation.
- Support data-driven planning, management and governance across the education system.

By embedding technology across these domains, National Education Policy 2020 focused on create an inclusive and capable future-ready educational ecosystem.

Key mentions to achieve policy objectives, “*Envision creating the National Educational Technology Forum (NETF), which will be the vehicle for integrating technology into different aspects of school education and higher education*”. (NEP2020)

The NETF will have the following functions

- I. Advise national and state-level educational bodies on implementing technology-enabled strategies and solutions.
- II. Develop both intellectual resources and institutional frameworks to support the growth and integration of educational technologies.
- III. Shape future-oriented research agendas and promote innovation in the field of educational technology

To strengthen the Central Institute of Educational Technology to promote and expand DIKSHA as well as other educational technology initiatives

The NEP 2020 has recommended the following key digital initiatives

S.N.	Recommendations	Initiatives
1.	Online platform and tools	SWAYAM, DIKSHA
2.	Address the digital divide	TV, Community radio for broadcasting, educational programs in different languages (24/7)
3.	Create Digital infrastructure	Digital-capable institutions
4.	Create e content	Digital repositories
5.	Blended learning Model	Online and offline parallel teaching-learning

6.	Examination, Assessment and Evaluation	NTA, Rubrics, PARAKASH, PORTF
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Source: https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf(self-complied)

ICT initiatives of NCRERT: For access and use of digital initiatives

S.N.	Platforms	Objectives
1.	PM e-VIDYA	PM e-VIDYA objectives to unify digital education efforts across India by providing multi-mode access to quality learning for all students, especially in underserved regions.
2.	e-Pathshala	To provide equitable access to quality digital educational e-resources for students, teacher, and parents across India, supporting inclusive and lifelong learning.
3.	DIKSHA	To provide a digital infrastructure that empowers teachers and learners across India with high-quality educational content and tools.
4.	MOOCs on SWAYAM:	To provide online courses, promote access, equity, and excellence in education.
5.	NISTHA	To shape the capacities of teachers to improve and enhance learning outcomes through integrated Technology, offers training different programs in online.

6.	NCF Tech Platform	To facilitate participatory, inclusive, and technology-enabled development of India's National Curriculum Frameworks (NCFs) in alignment with NEP 2020.
7.	ICT Curriculum	To empower students and teachers with digital literacy, critical thinking and enhancing learning, Creativity and lifelong skills.
8.	Accessibility in the school curriculum	To ensure inclusive, equitable, and barrier-free education to all. (SEDGs and learners with disability)

Source: <https://ciet.ncert.gov.in/initiatives> (Self-complied)

The emerging Trends of Digital Education in the 21st century

The prospective teacher must be aware of the emerging digital education trends in the current scenario. The trends of digital learning today are huge and growing exponentially. New trends are emerging daily to provide better learning strategies for students in this competitive world; some of these popular technological e-learning trends are listed in this study.

AI in education



Source: <https://www.leewayhertz.com/ai-use-cases-in-education/>

Artificial intelligence in Education (AI): Artificial intelligence is umbrella term in technology. It can be called the superpower of technology. AI is an ability of computer system that functions traditionally like human the mind. The NEP 2020 emphasised that use of artificial intelligence at school level for the prosperous, curious mind of a child. The policy envisions a future ready education system where technology, especially AI, plays central role in improving access, equity, and quality. Furthermore, The policy encourages the use of AI for data driven decision making to improve institutional planning and student outcomes. Recognizing the growing relevance of AI in global economy, NEP 2020 propose introducing AI literacy at various states of schooling and higher education to ensuring that students are prepared for emerging carrier landscape. Few examples of AI application- Grammarly, ChatGPT/Copilot, Quillbot, Jasper AI, etc.

M learning:

M learning is the process of learning anytime and anywhere enabled by personal electronic device that support interaction with content and others (Castillo & Ayala 2012)

Synchronous learning: Synchronous learning denotes to that all the mode of learning, where student and teacher are in the same place, at the same time, to learn. Example - live streaming, telephone, video conferencing, webinar, educational television, etc.

Asynchronous learning: Asynchronous learning is basically used for describe that form of teaching-learning, where instructor and student do not occur in same place or at that same time. For example- e-mail, video, audio recording, print material, etc.

Gamification: Gamification in e-learning platform is one of the rise. Basically, gamification refers to different game and activity-based machine learning technique. It depends on the desire of audience students. Teacher can suggest that students play educational games this platform for self-learning.

Augmented Reality: Augmented reality refers to computer generated image or video for user it views like a real world. Students can see, learn like real world presentation through electronics devices like mobile phone on which the augmented reality software is enabled and also learner can get all the information regarding the object.

Virtual Reality: Virtual reality basically denotes computer generated simulation, with interaction with an artificial three-dimensional environment using electronics devices. The user can feel realistic experiences in virtual learning.

STEAM: STEAM approach education refers to Science, Technology, Engineering, Art, Mathematics combined study. It is a new trend in Indian education system. The NEP 2020 has greatly emphasised STEAM Education for 21st century learners.

Digital assessment and evaluation: Digital platforms enable teachers to conduct both formative and summative assessment more effectively. Tools like google forms, and quizzes, and surveys.

Discussion and conclusion:

In the present scenario, preparing prospective teachers for the 21st century requires a robust understanding of digital tools, pedagogical flexibility, and a commitment to lifelong learning. Teacher preparation programs must embrace technology-enhanced learning, ensuring that future educators are proficient in using digital platforms and innovative tools to foster holistic development, critical thinking, and creativity in their students. This would not only help teachers keep pace with the changing dynamics of the educational ecosystem but also ensure they are capable of providing high-quality, inclusive, and future-ready education.

The National Education Policy 2020 emphasised on re-establishing the role of teacher in education and remembered their significant role in shaping the future of students. To support this vision, the Government of India has launched several initiatives such as SWAYAM, DIKSHA, NISTHA, PM e VIDYA, ICT Curriculum and accessibility in School Curriculum, to enhance the knowledge and professional development. Teachers

and students are also enabling them to update it the latest technology and methodology in education.

MOOCs Swayam offers different open online courses which provide opportunities to improve and enhance knowledge and pedagogical skills. These courses are flexible, self-paced, and accessible to teachers all over India, especially those learners live in remote areas. The DIKSHA platform is another online platform that offers access to a wide series of interactive e-content, e-resources, and training modules that focus on enhancing pedagogical competencies and integrating technology in the classroom. These platforms collectively support the NEP2020 goals of continuous, lifelong professional development, fostering a culture of digital literacy, competency-based learning, and inclusive education.

Through these initiatives, teachers and prospective teachers across the country are encouraged to engage in quality training programs, ultimately improving teaching practices and enhancing student learning. ICT-enabled teachers and ICT-capable institutions are both important in the current education system. Society needs to demand in the present time ICT-enabled teachers who interact with students, communicate effectively, and help knowledge construction.

Teachers must leverage technology to create digital content, communicate, interact and assess student learning in a timely and efficient manner. In this present time, there is rising demand for techno-savvy teachers who can seamlessly facilitate learning and support knowledge construction. By embracing ICT, Teacher can create a students centric learning environment that foster academic success and prepares students for an increasingly digital world. Although it is can say that “*Technology cannot replace as a teacher but Technology enable teachers can be change conventional Teachers*”

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