



Digital Learning and Technology Integration in School Education

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Abstract

Digital learning, and technology-enabled education, have revolutionized the school education system by improving teaching-learning processes and evaluation mechanisms. The recent developments in information and communication technology (ICT), artificial intelligence (AI), cloud services, virtual classrooms, and digital resources have tremendous potential to trigger disruptive innovation going beyond the didactic teacher-student pedagogy. Technology-enabled education is, therefore, education for quality, inclusive, equitable, sustainable, and competency-based development (NEP 2020). NEP 2020 advocates for utilizing digital technologies and resources for improving the overall educational experience and empowering teachers and students through multiple digital initiatives such as DIKSHA, PM eVIDYA, SWAYAM, SWAYAM PRABHA, National Digital Education Architecture (NDEAR), and digital classrooms. It has facilitated self-directed, collaborative, experiential, and flexible learning promoting higher-order skills like critical thinking, creativity, communication, and collaborative problem-solving. This paper focuses on the role of digital learning in school education and challenges in its adoption while also highlighting emerging opportunities and future prospects. This paper is conceptual in nature and adopts a qualitative research design. This study relies on secondary data in the form of published and unpublished reports, policy documents, journals, articles, books, and other relevant documents related to digital learning and education in general. This study presents an analytical review of the transformation process of the school education system through digitization as envisioned by NEP 2020. It discusses the impact of digital learning on accessibility, educational equity, pedagogy, teacher capabilities, and several other aspects. This study also reveals some of the challenges associated with digital learning and education in the Indian context in terms of accessibility, digital divide, technological limitations, teacher training requirements, cybersecurity concerns, availability of smart devices and internet penetration, social inequality, and several other factors. This paper recommends various interventions for leveraging digital learning and education to realize the vision of NEP 2020 and the United Nations Sustainable Development Goals (SDGs).



Keywords: Digital Learning, Artificial Intelligence, Information and Communication Technology (ICT), National Education Policy (NEP) 2020, DIKSHA, PM eVIDYA, SWAYAM, SWAYAM PRABHA, National Digital Education Architecture (NDEAR), Sustainable Development Goals (SDGs).

Introduction:

The twenty-first century has seen an explosion of education through the use of digital innovations. The integration of Information and Communication Technology (ICT) has influenced the production, dissemination, distribution, and utilization of knowledge in a variety of fields of study including various approaches and strategies of teaching and learning. Additionally, learner-centered strategies have displaced the teacher-centered approaches of the past. Digital learning is defined as the use of digital technologies such as computers, internet, multimedia, cellular phones and online platforms in teaching and learning. Technology in education therefore entails the use of electronic devices and information and communication technology (ICT) in teaching and learning as well as management to raise education levels and improve productivity.

The implications of globalization and knowledge economies have resulted in the need for digital education to produce world-class learners with twenty-first century skills such as digital literacy, creativity and collaboration, communication and critical thinking, and problem solving. Additionally, new education systems are being designed in response to disruptive technologies and new world of work. Digital learning meets these expectations by providing various opportunities for learning in and out of the classroom. Online resources facilitate collaboration among learners thus enabling peer to peer cooperation and social learning. Additionally, online learning offers flexibility through quick feedback and self-paced learning at the convenience of the learner. Moreover, online learning is geared towards meeting individual needs and interests of the learners.

The Covid-19 pandemic has also necessitated the need to use digital technologies for learning purposes due to the need to maintain social distance thus doing away with co-education. The closure of schools and universities due to Covid-19 has demonstrated how technology could facilitate learning through online resources, apps and materials. The teachers and learners were quick to embrace the use of technology in continuation of education. However, this has also demonstrated the disparity in the accessibility of technology and internet among the different learners. Therefore, there is a need to scale up the use of technology in education.

India is among the countries that recognize the potential of technology in education and has invested in developing a digital education platform. Technology in education is considered an important resource



for achieving quality, equitable, accessible and inclusive education as envisioned by the National Education Policy 2020 (NEP 2020). Effective use of technology is expected to leverage India's potential through its effective use in curricula, pedagogy, teacher education, assessments, planning, administration and governance. The Government has invested in putting in place digital infrastructure for education such as virtual labs, libraries and classrooms and has also provided training to teachers on digital education.

India has put in place various technological interventions to support digital education and enhance learning among learners. Digital India is a campaign that promotes digital empowerment of the citizens and uses technology to promote economic growth and social development. DIKSHA is another intervention that provides access to various educational resources through online platforms to facilitate learning. This program provides quality learning resources in local languages through the online portal. These resources include interactive digital textbooks, teacher training materials and online assessments. Other technological interventions that have been deployed in Indian education system include the Prime Minister eVIDYA, SWAYAM, SWAYAM PRABHA and the National Digital Education Architecture (NDEAR). These programs offer online resources as well as air-to-air media resources such as TV for learning purposes. The various online resources have contributed immensely to enhancing learning among Indian learners.

Technology has facilitated more engaging and interactive means of presenting content thereby enhancing education. Educational videos, games and animation have been used to facilitate student-centered learning. Similarly, virtual labs, interactive modules and games-based learning have been utilized to promote discovery learning among the learners. Artificial Intelligence (AI) has been integrated into education through the use of digital tutors, smart classes and assessments thus facilitating interactive and personalized learning resulting in positive learning gains by the learners. Additionally, online assessment tools such as examinations and tests have enabled teachers to track the progress of the learners and give feedback for improvement. Learning management systems have also been utilized to facilitate collaborative work among learners on assignments and projects thus enabling peer-group interactions and learning.

The changing roles of teachers in education have also been considered in the use of technology in education. Teachers are at the forefront of education and as such, their roles need to change to meet the demands of the changing world. Teachers therefore need to take on new roles such as mentoring and facilitating learning besides the traditional roles of teaching and managing students. Technology has enabled teachers to be more creative and innovative in their teaching and management practices.



Therefore, there is a need for teachers to acquire more digital literacy skills and pedagogical knowledge to play their roles effectively. Capacity building workshops for teachers on digital education would be beneficial in boosting their skills on using digital technology in teaching.

Despite the many positive roles of technology in education, there are various challenges in the integration process that need to be addressed. There is a disparity in access to digital resources across different populations and regions. There is also inadequate digital infrastructure such as internet and electricity in some regions thus limiting the use of technology in education. There is also limited funding for technology-related aspects of education due to the high costs incurred. There is also limited digital literacy especially among teachers. Other challenges include cyber security and ethical issues such as those surrounding the use of AI and data privacy. The social implications of the use of technology in learning such as screen time and safety need to be considered to maximize the benefits of using technology in education. The stakeholders need to take responsibility for the challenges and work together to address them.

The future of school education lies in blended learning whereby online and traditional learning are combined. The use of disruptive technologies such as Artificial Intelligence (AI), Machine Learning (ML), Learning Analytics, Blockchain, the Internet of Things (IoT) and related technologies will continue to provide a futuristic learning experience for the learners. Investment in digital infrastructure, capacity building, addressing social and technical challenges and developing policies to guide quality and inclusive education will be critical in achieving successful school education in India in line with the vision of NEP 2020.

Objectives of the Study:

The study proposes following:

- To understand the meaning, nature, scope and significance of digital learning in school education
- To know the impact of learning using technology on teaching-learning process, assessment and allied activities
- To review the major digital initiatives under NEP 2020 for imparting school education
- To identify the benefits of using digital technologies on students, teachers and schools in context of education
- To know the critical issues involved in adoption of technology for school education
- To suggest strategies for promoting digital learning and usage of technology for school education in india



Research Hypotheses:

The study is guided by the following hypotheses:

Research Hypothesis

H₀ (Null hypothesis):

- There is no association between the implementation of digital learning and improvement in the teaching-learning results of the school education system.

H₁ (Alternative hypothesis):

- The introduction of digital learning and technologies will have a positive effect on the teaching-learning results, as well as student engagement and the quality of education provided within schools.

Research Methodology:

Research Design of the Current Study

The current study has opted for a qualitative descriptive study design.

Sources of Data Used

- The current study primarily involves the use of secondary data for research. The current research aimed to examine the role, progress, opportunities, and challenges of digital learning and technology in school education, and the information pertinent to the research question was extracted through a review of the literature.
- The documents scoured and examined for the study comprised national and international reports, research studies, publications, journals, and documents pertinent to the research problem. The data sources explored for the study included:
 - National education policy (NEP) 2020 and National curriculum framework (NCF) 2023
 - Reports, publications, and research studies by the Ministry of Education
 - Reports, research studies, publications, and documents by the National Council for Education Research and Training (NCERT)
 - Guidelines, reports, publications, and documents by the Central Board of Secondary Education
 - Reports and research studies by UNESCO, UNICEF, and Organization for Economic Co-operation and Development (OECD)
 - Research articles, journals, and books
 - Government reports, policy documents, and websites



Procedures Followed by the Researchers-

The thematic analysis of the literature was undertaken for the current study. The themes identified for the study comprised digital learning and technology initiatives and programmes, technology-enabled pedagogy, teacher-readiness, child-friendly learning, digital infrastructure, and inclusive education. Through the identified themes, the study examined and established the role, progress, opportunities, and challenges of digital learning and technology. In addition, the study explored emerging trends of educational technology. The study findings were reported in relation to India and the NEP 2020 and NCF 2023. The current study also aimed to contribute to the existing body of knowledge by identifying emerging opportunities and challenges of digital learning and technology in school education.

Concept of Digital Learning:

Digital learning is defined as the use of digital technologies, electronic devices and internet platforms to aid in teaching and learning processes, assessment functions, as well as interaction procedures. Digital learning goes beyond the traditional classroom set-up, as it enables students and teachers to engage in academic processes using computer systems, tablets, mobile phones, online platforms, whiteboards, softwares, and other closely related technologies. Through its nature and characteristics, digital learning and related technologies offer numerous strengths and advantages to students, teachers, the teaching process, and the learning process itself. The use of digital learning and technologies provides a number of advantages to the students and the teaching and learning processes. The use of these technologies allows the students to perform individualized learning paces which can allow them to fully grasp concepts before proceeding to subsequent topics while also encouraging independent study using online resources such as videos, animation, podcast, e-books, and other related resources. In addition, the use of these technologies also encourages, improves, and enhances the roles, activities, and functions of educators and learners within the classroom, as compared to the traditional teacher-centered approach to learning. As such, through digital learning and the use of related technologies, there is an increase in the active roles played by both the educators and the learners as the former guides the latter to learn how to learn. Also incorporated within the use of digital learning and technologies, are enhanced interaction roles within the classroom which also improves the learning process. Other functions enabled by the use of digital learning and technologies in classrooms include assessment functions, feedback functions, planing functions, as well as general encouragement and promotion interaction and teamwork among the students. Collectively, these features, advantages, and strengths of digital learning and related technologies enhance the whole teaching and learning process, as well as encourage and enable the acquisition of various twenty-first century skills by the students.



Meaning of Technology Integration:

Technology integration is defined as the process of incorporating technology use into education in order to improve learning and enhance educational standards. As such, the term refers to the process of combining various technologies, such as digital devices, softwares, internet platforms, and other related equipment into the educational process. As a concept, technology integration demands the presence of appropriate technologies and softwares in the learning environment in order to facilitate successful implementation and improved learning outcomes. In addition, technology integration also requires policy formulation and the implementation of strategic actions and measures designed to ensure that the integrated technologies accomplish their intended purposes within the education system. With proper planning, technology integration can therefore play a vital role in achieving educational goals, improving the quality of education, as well as enhancing student interaction and motivation and encouraging other twenty-first century skills. Technology integration therefore allows teachers the opportunity to identify and utilize various technologies and other learning resources to fully engage the students in collaborative activities, content building activities, assessment activities, evaluation activities, feedback activities, as well as support activities.

Need for Digital Learning in School Education:

The explosion of digital technologies has fundamentally changed the education, communication and even the organization modes and processes of the modern workplace. This makes technology learning crucial in school education. Therefore, the reasons why digital learning should be integrated into school education include:

- **Offers Access to Quality Education:** Digital learning gives students access to attend online classes, e-Books, videos, lab manuals and other resources from anywhere and everywhere. In this respect, it provides educational equity by bridging the urban-rural gap by providing quality education to the privileged and the less privileged students.
- **Encourages Student-Centred Approaches:** The use of digital resources encourages student-centred approaches by giving them the freedom of choosing what and when to learn. It also promotes entertaining and engaging education by using games, videos and other resources.
- **Facilitates Twenty-First Century Skills:** Education through the use of digital resources facilitates twenty-first-century skills such as innovation, imagination, collaboration, communication, technological and computational thinking, and problem-solving to prepare students for subsequent higher education and career.
- **Achieves Competency-Based Education:**



- Digital resources make it possible to achieve competency-based education which in turn promotes educational outcomes that add value to students' skills, values, and attitudes. Besides, digital learning promotes experiential and active education, thus meeting the National Education Policy (NEP) 2020.
- Ensures Educational Continuity: Due to the COVID-19 pandemic, schools have been forced to close due to restrictions on gatherings and the movement of citizens from one place to another. However, educational continuity has been maintained through digital learning methods such as online lectures and video conferencing, online platforms, television, and radio programs.
- Supports Teachers: By providing instructional resources and assessments and giving feedback to learners, digital resources support teachers in promoting educational continuity. It also empowers educators to provide quality education and competency-based education while being knowledgeable about the meaning of competency-based education.
- Promotes Inclusive Education: Digital resources promote inclusive education by providing additional resources such as screen readers, speech-to-text prediction, audiobooks, captioning, and sign language interpretation. In this respect, it addresses special needs and different learning abilities among students.
- Encourages Collaboration and Innovation: Collaboration and innovation have been encouraged through digital learning by providing online forums, video conferencing, and other related resources. These aspects of learning are crucial and cannot be ignored.

From the discussion made above, it is evident that digital resources are needed to promote inclusive, equitable, and flexible education for sustainable development.

Importance of Technology Integration in School Education:

Technology has improved school education in several ways including; boosting teaching and learning, raising learners' involvement and performance, improving curriculum, and boosting institutional management. This is because:

- Teaching and learning has been enhanced through the use of technology as it provides resources such as presentations, videos, animations, virtual laboratories, simulations and other digital contents that make learning easier and more interesting.
- Use of technology has helped improve learners performance since the teacher is in a position to track the performance of each learner and come up with the best strategies to use in teaching.
- This has also helped raise the motivation and involvement of the learners thus leading to increased performance.



- Technology has been used to encourage collaborative learning amongst the learners thus enabling them to work together in completing assignments and projects as well as participating in interactive forums and video conferencing which has helped improve teamwork and collaboration among the learners.
- Use of technology has helped in assessing and evaluating performance of the learners through online quizzes, assignments and e-portfolio and analysis as a way of evaluating learning progress of individual learners.
- Technology has helped in sharing of learning materials such as e-books, notes, presentation, worksheets and lecture videos thereby making it easier to access course materials.

The issue of management of the institution has been addressed and improved since the use of school management information systems has helped in institutional management, for instance, in managing student's records, attendance, examination and other related issues.

Major Components of Digital Learning:

An effective digital learning ecosystem consists of several key components that contribute to enhancing the quality of education. These components include:

- **Digital Infrastructure:** Internet, electricity, computers, laptops, smart boards, projectors, servers, digital devices and software constitute the digital infrastructure used in education.
- **Digital Contents/E-books:** Notes, books, videos, animations, podcasts, models, virtual labs, and other digital contents are used in learning and teaching.
- **Learning Management System:** Learning management systems and other software needed for the facilitation of learning process, assignments, assessment, evaluation, grading, attendance, and communication.
- **Digital Assessments:** Exams, quizzes, analysis, evaluation, analytics tools, e-portfolio, reports and other tools for the assessment, reporting and analysis of the learning process.
- **Teacher Competence:** This component covers teacher training in technology education and application of various technology tools in teaching.
- **Digital Literacy:** Computer, information, media and communication literacy; cyber awareness.
- **Digital Security, Ethics and Privacy:** This component covers online safety, copyrights, data security and cyber etiquette, and relates to aspects of cyber security and privacy.

Major Digital Learning Initiatives in India:

The government of India is taking various technology enabled initiatives to promote digital education. Some of the key initiatives have been discussed below:



- **Diksha (Digital Infrastructure for knowledge sharing):** The end to end ministry of education ecosystem called DIKSHA has been conceptualized and designed by NCERT to host multi-lingual multi-modal educational content like digital textbooks, teacher modules, lesson plans, assessments, resources, videos and other e-content. The e-ecosystem has played a very important role in addressing the needs of millions of learners, educators, caregivers and administrators to facilitate learning delivery, teaching and other allied services through various digital tools and resources hosted on the platform. It has played a very important role in ensuring continuity of education through digital means and resources as a substitute for the conventional mode of delivery during the COVID-19 lockdown.
- **PM eVIDYA:** The Prime Minister's eVIDYA or digital education initiative is a pan India multi-modal and multi-channel education program which aims at providing 'education to all'. It has been providing various digital as well as non digital resources like DIKSHA, One class one TV channel, Educational TV channels, Community radio, podcasts and others to provide access to education through their preferred mode of choice. It addresses various aspects of inclusive education, special needs and education for all and lays emphasis on reducing the various existing disparities in education.
- **S WAYAM :** An online portal which aims at providing quality education by providing various online courses and resources from various premier educational institutions helping in promoting massive online learning initiatives and digital education as well as technology enabled education. The portal provides various courses to promote lifelong learning. **S WAYAM PRABHA:** The e-commerce of DTH TV channels which telecast educational content on 24x7 basis which can be accessed by the students online without having internet connectivity.
- **National Digital Education Architecture (NDEAR):** The national digital education infrastructure or NDEAR connects learners, educators, schools, academic institutions, administrators and other service providers through an online digital ecosystem which creates a collaborative and integrated technology enabled environment for digital education.
- **Virtual Laboratories:** Online portals which provide access to computer simulated laboratory based tools and instruments which help the students in gaining laboratory experience from the comfort of their homes without having to actually go to the laboratories.
- **Smart Classrooms:** Smart classrooms have been created by using computers and other digital screens, projectors, multimedia content and internet based teaching learning materials and



methodologies which help in effective and interactive teaching learning process and promote student centric learning.

Technology Integration under NEP 2020:

NEP 2020 takes cognizance of the potential of emerging technologies to contribute towards enhancing the education ecosystem and therefore proposes to leverage technology for effective implementation of school education, by integrating it into education planning, policy-making, curriculum design, pedagogical practices, teacher education, assessment, governance, and management. Technology is viewed as an important component of the education system and not as an add-on. NEP 2020 focuses on enhancing digital education infrastructure and promoting digital technology-enabled education for all. Some of the key proposals of the NEP 2020 related to technology-enabled education are as follows:

- The use of technology to bridge access barriers and reach out to diverse populations by overcoming geographic and language barriers by providing educational resources and opportunities at the school level;
- To promote and adopt online classes, video conferencing, virtual labs, e-library, open-source, and other digital resources for multilingual education by providing learning resources in various Indian languages at various educational levels resulting in equitable and quality education;
- A competency-based education system in which digital education will provide opportunities for active and experiential learning, critical thinking, creativity, and collaboration for supplementing formal education. It proposes to use technology strategically to move toward learning outcomes and go beyond rote learning;
- To build capacity among teaching personnel in terms of pedagogy and make them adept in utilizing digital tools and resources for supplementing instruction, assessments, feedback, and collaborative learning. The policy also emphasizes using artificial intelligence, machine learning, analytical tools, and other technologies to enhance personalized learning and make education more efficient and effective.

Educational Benefits of Digital Learning and Technology Integration:

By creating flexible, interactive, and learner-centred educational environments, digital learning contributes to improved educational quality and student achievement. The major benefits are outlined below:

- Provide access to quality education: Digital learning will provide access to quality education by giving every learner an option to participate in e-books, online classes, video conferences,



online courses and virtual learning as a complement and supplement to formal and informal education especially in the remote, rural, tribal and economically disadvantaged communities

- Enable personalized learning: Digital education will enable personalized learning by allowing teachers to provide a learning experience that is individualized, flexible and responsive to the learner's ability, pace, interests and needs. Additionally, use of adaptive learning software to achieve personalized learning will result in positive attitudes among the learners and improved academic performance.
- Encourage acquisition of twenty first century skills: Digital education will motivate and enable learners to gain mastery of various twenty first century skills such as critical thinking, creativity, communication, collaboration, digital and information literacies, computational thinking and problem solving among others.
- Facilitate effective assessment: Use of technology in education will enable effective assessment and evaluation of learners through online assessments and quizzes, e-portfolio assessment and analytics which provide continuous feedback on the progress and performance of every learner thus enabling the teacher to intervene where necessary.
- Enable flexible learning: The use of online courses in digital education will support flexible learning by allowing students to learn at their own time and place. Thus flexible learning will help students to review topics they did not understand well and move on with topics they are good at which will ultimately contribute to improved academic performance.
- Achieve effective communication: The use of digital media in education will enable effective communication and collaboration especially among parents, teachers, students and the school administration through emails, discussion forums and social media.
- Improve school management: School Management Information System (MIS) will improve school management through improved student and academic management and enhanced communication which will ultimately lead to improved planning of activities, improved financial management, improved time and resource management and improved accountability in the management of schools.
- Prepare learners for the future: Digital education will prepare learners for the future by providing them with relevant digital skills required in higher education and employment.



Challenges of digital learning and technology integration:

Despite its numerous educational benefits, the effective implementation of digital learning faces several challenges that limit its impact on equitable and quality education. The major challenges are outlined below:

Benefits of Digital Education

Include the following:

Provide access to quality education: Digital learning will provide access to quality education by providing an alternative such as e-books, online courses, video conferences, online classes and virtual learning as a complement and supplement to formal and non-formal education in addition to providing access to quality education in remote, rural, tribal and economically disadvantaged communities

Enable personalized learning: Digital education will enable personalized learning by allowing the educator to provide a learning experience that is individualized, flexible and responsive to each learner's capacity, speed, needs and interests. In addition, the use of adaptive learning software to achieve personalized learning will result in positive attitudes among the learners and improved performance

Encourage acquisition of twenty first century skills: Digital education will motivate and empower learners to acquire various twenty first century skills including cognitive, creative, communication and collaboration skills, digital and information literacies, computational thinking, and problem solving skills

Facilitate effective assessment: Use of technology in education will enhance effective assessment and evaluation of the learner through online assessments and quizzes, e-portfolio assessment and analytics to enable the teacher to intervene where necessary based on continuous feedback of the performance of each learner

Enable flexible learning: The use of online courses in digital education will promote flexible learning by allowing the student to choose the time and location of learning according to their needs and wants. Thus, flexible learning will allow the learners to review topics they did not understand well and move on with topics they are good at leading to improved performance.

Achieve effective communication: The use of digital media in education will enable effective communication and collaboration among parents, teachers, students and the school administration hence improving the overall effectiveness of teaching and learning processes through emails, discussion forums and social media

Improve school management: School Management Information System (MIS) will improve school management through improved student and academic management and enhanced communication



leading to improved planning, financial management, time and resource management and improved accountability in the management of schools.

Prepare learners for the future: Digital education will prepare the learners for the future by equipping them with relevant digital skills needed in higher education and employment.

Suggestions for Strengthening Digital Learning in School Education:

- Professional development of teachers offering training in digital pedagogy, educational technology, Artificial Intelligence, LMS, blended learning, and Competency Based Assessment, on a continued basis, to update knowledge and skills on the use of technology for teaching-learning processes
- Production of digital content in tribal and regional languages and other alternate formats for the differently abled, for making learning accessible, relevant, interesting and participatory with the help of captioning, visual captioning, screen readers and other tools,
- Using blended mode of instruction and interaction as default mode with appropriate flexibility built into the design to meet the needs of all
- Need to build cyber security policy for schools to deal with cyber-crimes, threats and vulnerabilities and to sensitize teachers and students on cyber safety and digital security and citizenship. It is essential to include modules on cyber safety and cyber ethics and related issues in the school curriculum
- Need to promote collaboration between Governments, Schools, Teachers, Parents, Community, Educational Institutes, and Agencies working in the field of Technology and Innovation for technology-enabled education, with effective monitoring and evaluation, for achieving sustainable impact.
- Need for providing adequate technical support to schools for installation, maintenance and troubleshooting for technical issues so as to ensure smooth use and adoption of digital technology for effective teaching-learning process, with minimal interruption and downtime.
- Need to evolve a system for periodical review and evaluation of digital education initiatives based on defined indicators relating to learning outcomes, readiness and capacity building of teachers, digital infrastructure, and inclusiveness, for effective decision-making for sustainable development
- Need to promote and reinforce digital literacy for all, not only through computer education but also through its use as a pedagogical tool across the curriculum for developing information



literacy, media and visual literacy, computational thinking, cyber safety and ethical use of digital resources among students, in order to prepare them for the changing digital world

Conclusion:

Digital learning and educational technologies are becoming critical to schools' ability to transform education and offer new pedagogical approaches as well as administrative functions. Educational technology has made significant contributions towards improving the didactic modes of teaching in schools to more learner-centric, contextual, collaborative, creative, competency based and futuristic education. NEP 2020 acknowledges the role of digital technologies in school education and offers recommendations for harnessing technology for curriculum transaction, pedagogy, teacher education, assessment and school administration. There are several digital initiatives such as National Digital Education Architecture, DIKSHA, PM eVIDYA, SWAYAM, SWAYAM PRABHA, etc., being undertaken by the Government of India under various missions, which contributes towards the content and pedagogy and provides quality education through online mode. Thus, the present study focuses on the role of digital technologies in school education. The study reveals that technology has played a significant role in school education by facilitating engagement of the learners leading to enhanced learning outcomes as well as enriched learning experience which includes competency based education and personalized learning, improved assessment, teacher learning and development, and acquisition of various 21 st century skills. At the same time, the study underlines the various challenges in adoption, adaptation and sustainable usage of technology in schools due to digital divide, infrastructure, affordability, teacher training, cyber security and availability of resources. It is revealed that addressing these challenges at various levels can contribute immensely to promoting digital innovation for sustainable development.



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