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Integrating Technology in History Education: Digital Pathways and Transformative Practices Aligned with Nep 2020

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ABSTRACT

History is one of the core subject in Secondary school education. Teaching history effectively can be challenging at higher education levels due to conventional methods often causing dullness. As a result, students lose motivation to excel, which leads to disinterest in the subject. Employing varied teaching methods helps keep students engaged and fosters a more profound comprehension of historical concepts. Emerging technologies encompass innovative developments and transformative advancements encompassing multiple disciplines, characterised by nascent integration phases. These technological innovations present transformative potential, capable of offsetting entrenched industries while concurrently offering inventive solutions to contemporary challenges. Their dynamism emanates from their capacity to reconfigure established paradigms, creating unprecedented opportunities. Nascent advancements at the forefront of scientific and technological progress exhibit potential to facilitate groundbreaking shifts with resonance across multiple sectors. These technologies adoption become focal points of engagement, exploration and investigation. The National Education Policy (NEP) 2020 emphasizes the use of technology in education to foster interactive and multidisciplinary learning. Integrating technology in history classrooms enhances engagement, critical thinking, and historical analysis. This paper explores the alignment of technology integration with the goals of NEP 2020, focusing on digital tools, quality education, gamification, and artificial intelligence to transform history education.

Keywords: History, conventional methos, NEP 2020, interactive, multidisciplinary, critical thinking, digital tools

1. INTRODUCTION

History education as an academic discipline has a long history in the world. Traditional methods of teaching and learning in history classrooms are still the dominant teaching strategies in the twenty-first century.(Fufa, F.S., Tulu, A.H. & Ensene, K.A.,2024).History teaching should not only be mastery of the basic content (substantive knowledge) but also enhance the acquisition of subject skills and competencies



that will make students learn on their own and manage their own lives and carry it through the adversities of life in society.

Technologies comprise transformative innovations across various domains, characterized by their capacity to disrupt established industries and provide innovative solutions to contemporary problems. The dynamic nature of these technologies arises from their ability to redefine traditional paradigms and unlock unprecedented possibilities. As precursors to profound changes, nascent advancements in emerging technologies exhibit the potential to drive sector-wide transformations. Via the exploration and investigation of these technologies during their initial stages of adoption, industries undergo evolution, and pioneering solutions are developed that transcend existing boundaries.

Historical comprehension relies heavily on the integration of specialist terminology harnessed from the past, temporal phrases inherent in historical narratives, and the conceptual frameworks of historical processes. The classroom environment, supplemented solely by text-based materials, falls short as a comprehensive platform for fostering historical understanding, as it fails to replicate the multisensory experiential components associated with archival settings, theatrical productions, or historical landmarks. Consequently, verbal accounts from educators and students, alongside written documentation, visual media, digitally accessed information, and empirical records, emerge as crucial tools for cultivating historical literacy.

Researchers such as Taylor (2005) posit that History instructors should leverage technological resources to establish benchmarks for developing historical competencies. In this context, Taylor identifies the following attributes essential to historical literacy: recognition of past events; the formulation of narratives; employment of research methodologies; acquaintance with foundational historical concepts; understanding of information communication technologies; drawing connections; acknowledging contention and contestability; representation of historical expressions; development of moral judgement; application of scientific principles within historical contexts; formulation of historical explanations; and the utilisation of historical languages.Studies have identified a disconnect between what students find relevant in history and curricular perspectives or official programmes, suggesting a misalignment that needs addressing to make history education more engaging and relevant to students' lives, especially for the students from diverse backgrounds (Grever, Haydn and Ribbens, 2008;Grever, Pelzer and Haydn, 2011; Harris and Reynolds, 2014).

In the current dynamic educational landscape, the incorporation of emerging digital technologies is highlighted as a revolutionary force, carrying substantial implications for learners, educators, and institutions alike. These technologies have transcended their basic functions and have now become indispensable components of the educational environment.

In an era characterized by unparalleled connectivity, vast information accessibility, and rapid technological progress, it is crucial to examine how these emerging digital tools are reshaping education and the significance of this transition. With a predominant focus on utilizing digital technology in the wider education sector in academic research, there is a deficiency in studies directly addressing the pedagogical aspects of digital technology and history education. Therefore, expanding the scope and identifying relevant research methodologies in the interdisciplinary domain has become vital in undertaking this research effort.



Throughout history, the integration of new educational technologies has been closely intertwined with the evolving methods of teaching history and the learning culture, from past eras to the present day.

The gap between the current state of learning outcomes and what is required must be bridged through significant technological integration that brings the highest quality, equity, and integrity into the system, from classrooms to the global level. The aim of NEP 2020 is to create an education system by 2040 that is second to none, offering equitable access to the highest quality education for all learners, regardless of their social or economic backgrounds.

2. REVIEW OF RELATED LITERATURE

Any research project needs theory to provide direction and help on how things are implemented. Theoretical foundation aids in deciphering the way phenomena happen and the basis of specific actions (Schull.E., 2022). Technology can revolutionize India's education system by enhancing accessibility, elevating educational quality, and mitigating disparities in education. Using ICT, one may even encourage and enhance the learning process (Shobana,2024). ICT can be used as a means of engagement, a source of knowledge, and a medium for knowledge transfer. ICT offers a broad range of applications and has the potential to play an important role in the education sector. ICT promotes a constructive approach to learning activities. Banarjee 2024 in his study revealed that students get opportunities to make contact with teachers and other students and also have a conversation. They can access various sources of information (Prama Chatterjee), 2023. The use of technology in education has the potential to revolutionize the way educators approach inclusive education. Assistive technology can help students with special educational needs (SEN) or language difficulties feel accepted and fulfilled in the classroom, while also promoting equal opportunities and enhancing the overall educational journey for all students. Technology could be used to stimulate students to brainstorm and connect educational concepts and current global issues with their classroom learning (Brooks 2009). In addition to it, Pynoo et al. 2011 stated that the integration of new technology such as laptops, tablets, and smartphones in the classroom learning process has increased students' self-efficacy in problem solving.

In the light of reviewed studies, it can be highlighted that there is a need of integrating technology in teaching of history in the classrooms.

3. OBJECTIVES OF THE STUDY

1. To explore effective digital tools and teaching strategies that can enhance history learning.

2. To explore the challenges and opportunities of using technology in history classrooms across various regions of India.

3. To suggest practical and inclusive methods for teachers to make history more engaging and multidisciplinary through technology.

4. RESEARCH METHODOLOGY

The study is purely descriptive in nature and is based on secondary data collected from digital databases, scholarly articles, official reports from India, and other relevant publications.



5. THE RELEVANCE OF HISTORY EDUCATION IN THE DIGITAL ERA

History helps pupils to use their reason as well as their memories, and to develop skills of analysis and criticism in a situation where there cannot be a provably right answer." — Sir Keith Joseph, writing in The Historian, Spring 1984

Vygotsky's theory of social constructivism emphasizes pedagogical approaches that encourage active, effective, and meaningful learning, constructive engagement, and learning by doing (Gogus, A., 2012). A good educational institution is one where every student feels welcomed and cared for, where a safe and stimulating learning environment is maintained, where a wide range of learning experiences are available, and where good physical infrastructure and appropriate learning resources are accessible to all students. Attaining these qualities must be the goal of every educational institution. At the same time, there must be seamless integration and coordination across institutions and all stages of education (NEP 2020).

The study of historical events provides a nuanced understanding of the evolution of modern society by elucidating the factors that have contributed to its development. History, as a powerful and shaping force, has influenced diverse cultures and societies over time. A critical analysis of historical events offers valuable insights into the origins of cultural norms, customs, and philosophical principles. Thus, history plays a pivotal role in shaping cultural dynamics and offers important lessons for contemporary society. The effective teaching and transmission of historical knowledge foster unity, mutual understanding, and cooperation among diverse communities by promoting tolerance, open-mindedness, and intercultural dialogue.

In the contemporary era, the proliferation of digital education in India is no longer a passing trend but a deeply embedded component of the education sector. Advancements in technology have enabled digital education to become a prominent alternative to traditional classroom instruction, with the potential to revolutionize the Indian educational framework. In the field of history education, the integration of digital tools and platforms offers new opportunities for enhancing student engagement, promoting critical thinking, and making historical learning more accessible and interactive.

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Figure 1. Highlighting the interconnected components influencing teaching with technology

This flowchart depicts the interconnected components influencing teaching with technology. It highlights how four key elements- Student, Instructor, Content, and Technology interacting dynamically within the teaching-learning process. Each element is influenced by specific factors:

- Student: Learning styles, technology skill level, and access to technology.
- Instructor: Role as teacher, technology proficiency, and time availability.
- **Content:** Cognitive levels required and the discipline being taught.
- Technology: Types of technology and their pedagogical uses.

These components work together to shape the effective integration of technology in education. Since History is one of the subjects being offered at secondary and tertiary levels, its relevance and sustenance in the 21st century requires the adequate application of ICTs like video tapes, television and multimedia computer software that combine text, sound and colorful moving images which can be used to provide challenging and authentic content that will not only engage the student in the learning process but as well make learning concrete.

6. ROLE OF TECHNOLOGY IN TRANSFORMING HISTORY EDUCATION

Historical knowledge is no more and no less than carefully and critically constructed collective memory." — William H. McNeill



The integration of technology into history education offers numerous potential benefits for both educators and students. Academic research suggests that technology can significantly enhance student engagement, improve knowledge retention, foster collaboration, provide access to diverse sources, and develop essential digital literacy skills.

Technology has the capacity to make historical content more captivating and relevant, particularly for students who have grown up in a digital environment. The interactive and multimedia features inherent in many technological tools capture students' attention and make learning experiences more relatable. For instance, simulations, virtual tours, and interactive timelines provide dynamic alternatives to traditional methods, promoting deeper student investment in historical study. The effectiveness of technology in boosting engagement is often attributed to its novelty, interactivity, and capacity to support personalized learning experiences. By leveraging familiar technologies, educators can tap into students' intrinsic motivation and make the study of history more meaningful and accessible.

As UNESCO (2010) notes, "It is the quality of teacher education programs that is the key issue to a successful integration of ICT into the classroom and depends on the ability of teachers to structure the learning environment in non-traditional ways, to merge new technology with new pedagogy, and to develop socially active classrooms that encourage cooperative interaction, collaborative learning, and group work."

Notably, the National Education Policy (NEP) 2020 places strong emphasis on integrating technology to enhance pedagogical practices at all levels of education. It advocates for the development of digital infrastructure, online learning platforms, and Artificial Intelligence-driven personalized learning systems to improve accessibility, engagement, and operational efficiency within educational environments.

In history education specifically, digital tools have significantly transformed traditional pedagogical approaches, making historical inquiry more interactive, engaging, and accessible. Technologies such as virtual simulations, digital archives, gamified learning platforms, and multimedia narratives have been shown to enhance students' analytical skills and help them relate historical events to contemporary issues. There is a broad consensus in the academic community that digital tools promote deeper engagement, improve knowledge retention, and stimulate independent exploration. However, successful integration requires intentional curriculum design to ensure that technology complements, rather than replaces, critical discussions, analytical debates, and evaluations of primary sources.

7. CHALLENGES IN INTEGRATING TECHNOLOGY IN HISTORY CLASSROOM

The integration of technology into Teaching History in India faces several critical challenges that must be addressed to ensure equitable access and effective learning outcomes. Some of these challenges are as under:

• Digital divide

The digital divide in India remains a significant challenge, affecting education, financial inclusion, and social mobility. While government initiatives aim to bridge this gap, economic disparities, infrastructure limitations, and digital literacy must be addressed to ensure equitable access to technology. Despite registering a significant (digital) growth rate of 13 percent in a year, only 31 percent of the rural population uses the Internet compared to 67 percent of their urban counterparts. (Oxfam India 2022).



• Limited availability of digital content in Indian languages

India has a multitude of languages and dialects, resulting in limited digital educational resources available in the majority languages, English and Hindi .Developing relevant, multilingual digital educational content is crucial for inclusive and effective ICT-based learning, but it demands substantial collaboration and investment from content creators, educators, and policymakers.

• Shortage of Trained Teachers in India

The shortage of adequately qualified and trained teachers remains a significant challenge for the country's public education system. Currently, there are 9.5 million teachers in India to teach 250 million students (UDISE+, 2021-22). Nearly one-third of teachers in elementary government schools do not possess the required teaching degree (India Today,2025).

• Technophobia among teachers

Teachers working in secondary schools have exhibited the highest technophobia towards the use of ICT in secondary schools, with the dimension, use of technology in the classroom teaching. The priority given to this aspect of technophobia is due to the fact that the teachers are not tuned towards digitalization. Further, they have a strong belief that technology cannot replace a teacher in the classroom(Reddi Aruna,2023).

Inadequate Professional Development

Even for many highly qualified teacher educators, ongoing development is not sustainable. They require continuous retraining and updating on the latest education research and innovative teaching methods. In India, professional development programs for teacher educators are often poorly planned or poorly implemented, which negatively impacts the quality of teacher training and the education received by students in schools.

Teacher professional development methods have not kept pace with evolving student learning through technological advancements. A new approach is recommended by the 2020 National Education Policy, which views professional development as an ongoing process rather than separate events. This approach supports teachers receiving 50 hours of annual development (Singh & Sharma,2025).

8. STRATEGIES TO OVERCOME CHALLENGES IN INTEGRATING TECHNOLOGY IN HISTORY CLASSROOMS

1. Bridging the Digital Divide

- Government investment in rural connectivity through BharatNet and PM-WANI (Wi-Fi Access Network Interface) should be accelerated.
- Subsidized digital devices for underprivileged students and schools through CSR programs and public-private partnerships.
- Mobile learning solutions, such as offline apps and SMS-based content, can provide access where internet connectivity is weak.



2. Developing Multilingual Digital Content

- Encourage local language content creation by involving regional historians, educators, and language experts.
- Use AI translation tools to make high-quality educational content accessible in Indian languages.
- Support initiatives like DIKSHA, which offers multi-language educational resources, and expand its scope to include more localized historical materials.

3. Addressing the Shortage of Trained Teachers

- Implement blended learning models where one trained teacher supports others using digital tools and peer learning methods.
- Create online teacher training portals that offer flexible, modular courses on both content and pedagogy, like NISHTHA.
- Offer financial and career incentives for teachers who obtain ICT training or digital pedagogy certifications.

4. Reducing Technophobia Among Teachers

- Organize low-stakes, hands-on workshops that introduce simple tech tools gradually, starting with audio-visual aids and progressing to interactive platforms.
- Foster mentoring programs, pairing tech-savvy teachers with less confident peers.
- Promote a growth mindset through success stories, peer recognition, and feedback mechanisms showing how technology can enhance not replace teaching.

5. Improving Professional Development

- Design continuous professional development (CPD) programs aligned with NEP 2020's recommendation of 50 hours per year.
- Encourage use of Massive Open Online Courses (MOOCs) and platforms like SWAYAM and NISHTHA for ongoing learning.
- Introduce community of practice models, where teachers regularly meet (virtually or in person) to share tech integration strategies and experiences.

6. Policy and Administrative Support

- Include technology integration metrics in school evaluations to incentivize adoption.
- Ensure that school leaders are trained in ICT management to support and guide their staff.
- Allocate dedicated ICT budgets at the school level for maintenance, upgrades, and teacher support.



In addition to solutions proposed above, Various digital tools can be used for integrating technology in history classroom and thus making teaching more interactive and interesting.

These tools aid instructional endeavors and showcase the teacher's expertise, contributing to a deeper appreciation for institution-based research that spans academic boundaries. Technology-integrated teaching methods harness the power of digital tools to enhance the learning experience. Interactive presentations, multimedia resources, virtual field trips, and educational apps bring history to life, engaging students in a dynamic and immersive way. Digital archives, online databases, and virtual museums provide access to vast amounts of historical information, enabling students to conduct research and explore primary sources with ease (Banrajee, 2024).

S.no.	Name of Tools	Description of the tools	Examples
1.	Timeline Creation Tools	These tools allow students and teachers to create interactive, multimedia timelines. Users can embed images, videos, text, links, maps, and other media directly onto a chronological framework. This helps visualize the sequence of events, understand cause and effect, and compare different historical periods or developments side-by-side, and present historical narratives engagingly. Students can collaboratively build timelines for projects or individually demonstrate their understanding of chronology and context.	TimelineJS, Tiki-Toki, Sutori
2.	Digital Mapping & Storytelling Tools	These tools integrate maps with multimedia content (text, images, and video) to create geographically grounded narratives. Students can map historical events, track migrations or trade routes, analyze the spatial dimensions of historical phenomena (like battles, urban development, or the spread of ideas/disease), and present their findings as interactive stories. This fosters spatial thinking and helps students understand the importance of geography in history.	StoryMapJS, ArcGIS StoryMaps, Google My Maps, Google Earth
3.	Collaborative & Organizational Tools	These platforms facilitate collaboration, brainstorming, and organization. Padlet acts like a digital bulletin board where students can post ideas, images, links, and comments related to a historical question or topic. Shared	Edpuzzle

Table 1. showing the types of Digital tools that can be used in a history classroom



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		documents/slides allow for collaborative research note-taking, project planning, or presentation building. These tools help manage group work and structure class discussions or inquiries.	adaptive learning platforms
4	Digital Archives and Primary Source Platforms	Description: These platforms provide access to vast collections of digitized primary sources, including documents, photographs, audio recordings, videos, maps, and artifacts. They allow students to engage directly with historical evidence, practice source analysis (considering origin, purpose, bias), and conduct research beyond the textbook. Many offer curated exhibits and educational resources. Google Arts & Culture also includes virtual tours of historical sites and museums.	Google Arts & Culture, National Archives (of various countries, e.g., US, UK), Library of Congress Digital Collections
5.	Memory games	Reinforces recognition and retention of key historical facts.	Historical memory match,sequence shuffle

9. CONCLUSION

Using technology in history classrooms, as outlined in the 2020 National Education Policy, can lead to a modernized approach that emphasizes critical thinking and learner-centric education. Digital tools enable interactive and inclusive learning settings that cater to diverse student needs while leveraging gamification and virtual experiences to deepen understanding of historical events. A balanced approach combining innovative technology and pedagogical expertise will reshape the future of history education by equipping learners with the skills to navigate a rapidly evolving digital world. Also comprehensive training programme is required to equip history educators and learners with the skills necessary to leverage technology as a pedagogical tool and instructional resource. Teachers' professional development should incorporate specialised training to enhance their capacity to utilise technology effectively in their teaching practices. Integration of technology should be thoroughly planned and implemented, moving beyond superficial inclusion to genuine incorporation that highlights the benefits of technology-enhanced learning outcomes. This approach should encompass diverse disciplines, allowing learners to develop essential skills for success in the 21st century.



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- Google MyMaps: https://www.google.com/mymaps
- Google Earth: https://www.google.com/earth/
- Teaching Tools:
- Padlet: https://padlet.com/
- Google for Education: https://edu.google.com/
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Education Platforms and Archives:

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