EMPOWERING TOMORROW'S INNOVATORS: INCREASING TECHNOLOGY INTEGRATION IN EARLY CHILDHOOD CARE AND EDUCATION THROUGH NEP 2020

DR. MANISHA H. JADAV

Assistant professor
S.V. College of Education,
Kadi Sarv Vidyalaya campus,
Behind Railway Station, kadi
District: Mehsana

==

Introduction:

In today's rapidly evolving digital landscape, early childhood educators have an unprecedented opportunity to enhance learning experiences for their young students through the thoughtful integration of technology. By incorporating these seven unique strategies into the classroom, teachers can create an engaging and enriching environment that fosters a love for learning and prepares children for the future. Technology in early childhood education has transformed over the last 50 years. TVs were used to strengthen lessons and capture the interest of students. Televisions would graduate to computers and smart technology through phones, tablets, and apps.

In early childhood education, technology can be a tool to facilitate learning. In conjunction with interactive media, it plays a large role in guiding the development of young children. It enables them to play, express themselves, and cultivate their skills in a safe, engaging way. Still, concerns are typically raised regarding technology, interactive media, and early childhood education. Some public health organizations and child advocacy groups concerned with child development and health issues, such as obesity, have recommended that passive, non-interactive technology and screen media not be used in early childhood programs.

With parents and guardians playing a significant role in early childhood education, there are additional concerns with the passive use of screen media in the home. An example is keeping the television on and playing in the background. It can cause irregular sleep patterns, focus and attention problems, and an increase in screen time. However, the findings on the value of technology in children's development can be confusing as they're divided. It's no secret that the learning materials of the past were limited. Depending on when you went through early childhood education and development, you likely had access to textbooks, library books, and possibly a few videos. With technology, the resources for today's children are virtually limitless. The learning opportunities go beyond the words in a textbook and can introduce

children to information and cultures beyond their classroom and community. Technology allows you to present diversity to young learners, for example, by exposing them to different types of people, music, and family structures.

By thoughtfully integrating technology into early childhood education, teachers can unlock endless possibilities for their students. Technology becomes a powerful enabler of learning, nurturing curiosity, creativity, and critical thinking—the essential skills necessary for success in the digital era and beyond. Let us embrace technology's potential while staying true to the essence of early childhood education, fostering a love for learning and establishing a strong foundation for lifelong growth. Technology plays a central role in modern in-person or remote educational environments, including the early childhood education classroom. When used appropriately, educational technologies can enhance learning experiences for young learners. But selecting appropriate educational technologies and integrating them effectively is complex. It requires intention, technological literacy, and collaboration between all parties involved.

Virtual classroom software and video conferencing tools allow interactive education when in-person school is not an option. These tools can also enable student interaction and collaboration with people from different communities and cultures worldwide, regardless of virtual or in-person classroom environments. This fosters cultural awareness and intercultural communication skills necessary for life in the 21st century.

Technology in early childhood education

❖ Why is technology important in early childhood education

Our experience as an educator, we have likely learned that there is rarely just one way to do something; technology is a clear example of this. In the past, teachers had very few resources at their disposal. They didn't have access to much more than textbooks and props. Now, technology offers more for educators and children. Technology can give you access to more resources, innovative teaching methods, and variety as you create an active learning environment for your children. Incorporating technology into your children's development and education plan also enables you to create lessons for multiple learning styles. Visual learners can use smart boards or tablets to draw pictures and look at other visual aids, while reading/writing learners can use the same media to absorb information or write down ideas. Music streaming platforms or audiotapes can be helpful for auditory learners. As for tactile learners, these young children can learn by acting out a scene they saw in a video or using interactive media on smart technology devices.

The importance of technology in early childhood education doesn't end there. There are many associated benefits. Technology can:

- ➢ Support the development of fine motor skills
- ➢ Strengthen coordination and reaction time
- ➢ Improve social and emotional development
- ➢ Promote collaboration and relationships
- ➢ Build cultural awareness
- ➢ Help language development
- ➢ Offer opportunities for information processing

Again, technology is a tool to facilitate learning, and when used appropriately, it can have remarkable effects on early childhood education.

- ➢ Technology should be used to increase access to learning opportunities for all children.
- ➢ Technology may be used to strengthen relationships among parents, families, early educators, and young children.
- ➢ Technology is more effective for learning when adults and peers interact or co-view with young children.

Technology should be used to increase access to learning opportunities for all children Engaging with and encouraging children during and after a lesson can help solidify the information and lead to more effective learning. It's up to you to determine how you use technology in the classroom. As long as you plan active, engaging activities, focus on content, monitor screen time, and work together, you should be able to use technology to create a successful educational and developmental learning environment for young children.

Examples of technology in early childhood education

Depending on their age, young children have different exposure to technology. For infants and toddlers, their experience is almost exclusively guided by their teachers, parents, and families. As they grow to preschool age, they develop more autonomy and independence. This can lead to technology acting as a creative outlet and learning resource.

There are many ways in which technology such as televisions, smartphones, and computers, and interactive media like apps and games, can create a successful classroom environment.

- ➢ Use technology to introduce young children to diverse images of people and things.
- ➢ Create progress reports using audio or visual files to share digital updates with families.
- ➢ Use video-chat software to communicate with children and families outside the classroom.

➢ Document children's drawings and create digital books with photos to explore digital storytelling.

➢ Expose children to concepts like science, technology, engineering, arts and mathematics (STEAM) by including in your lesson plans.

Technology creates an abundance of learning opportunities in the classroom. With its vast capabilities and your creativity, you can create countless lessons for your children. NEP 2020 acknowledges that different advancements in technology such as educational software, artificial intelligence, blockchain, handheld computing devices, adaptive computer testing, etc. will play an important role in changing what and how students learn at school. Thus, integrating digital technology in education requires detailed research toward development of teachers, improvement of teaching and assessment processes, equity in technological access and administrative tasks such as admissions processes, planning, attendance, etc.

❖ **Importance of technology integration in education**

1. The recent occurrence of a pandemic has underlined the importance of having alternative methods for imparting education whenever the in-person method is not possible

2. Online programmes ensure education and training of teachers at a much faster pace to prepare them for remote teaching

3. Online education makes it possible to reach the remotest of places as well as students with disabilities. However, this first necessitates access to technology and connectivity networks across the country which is being made possible through campaigns such as Digital India

4. Technology will help build digital libraries and repositories, facilitating access to course content irrespective of language barriers between teacher and student

Methods for enhancing the NEP 2020 school with digital technology in education

In order to bring about the vision of full-scale integration of technology with the education system, as required under the NEP 2020, thorough evaluation of new technological interventions such as software, smartboards, computing devices, etc. needs to be done from a technological and educational point of view. Let us see some of the methods and initiatives rolled out for achieving this.

1. The National Educational Technology Forum (NETF): The NETF, an autonomous platform for free exchange of ideas to improve learning, planning, administrative activities, assessment for schools and educational institutions, will provide latest updates

and knowledge to educational institutions and aid decision making for use of technology. It will also work in an advisory capacity to the central and state governments, identify strategic areas for technological penetration, research and innovation in the education domain. The National Educational Technology Forum shall also prescribe standards for online learning, content and pedagogy and conduct regional and national conferences to seek ideas and inputs from educational technology researchers and entrepreneurs. Lastly, the NETF will analyse and categorise new innovations and technologies and present these to the Ministry of Education along with the time expected for implementation of such technology

2. DIKSHA portal: Educational software in all major Indian languages will be developed by states and made available and accessible to teachers and students, including those in rural areas. The Digital Infrastructure for Knowledge Sharing (DIKSHA) portal of the Government of India, created for teachers as infrastructure for the entire teaching lifecycle, will be used to house such software

3. Equipment for teachers: Teachers will be provided with required equipment to enable inclusion of digital technology in education. Use of technology in NEP 2020 requires that such initiatives be integrated across schools and colleges and undergo periodic qualitative updates through feedback from users

4. Disruptive technology: The National Research Foundation, along with higher education institutions (HEIs), will promote application-based research in the field of Artificial Intelligence (AI) for creation of online teaching materials and courses. Trainings and programs, made possible by adopting technology in higher education, will be set up to impart new skills required for jobs that may become redundant due to AI

Key Provisions of new NEP 2020 related to Technology in Classroom Content Delivery

1. Emphasis on digital literacy and digital learning: Studies will be conducted by appropriate institutions to understand the benefits of integrating online with offline education and evaluate important aspects of it such as addiction to devices, preferred formats of e-content, etc.

2. Integration of technology across subjects and grade levels: Digital technology in education will be introduced during the initial years of the school system itself to ensure availability and accessibility of education to all and improve enrolment rates. Special emphasis will be laid on availability of content for subjects in all Indian languages

3. Use of educational apps, online resources, and digital platforms: NEP 2020 recognises the need for open, scalable, public digital infrastructure that can be used

across various platforms and cater to India's size and diversity. Such solutions will have to be robust and keep up with rapid advances in the technological realm. Existing platforms such as DIKSHA will be made available to teachers to assist with online delivery of education

4. Promoting blended learning and flipped classroom models: While online education has become a necessity today, NEP 2020 also acknowledges the importance of face-to-face teaching and learning and mandates blending of the two effectively. With flipped classrooms, reading/recorded course material can be shared in advance with students for preparation and classroom time utilised for discussion and application of knowledge gained from the course material. This gives more time to students to assimilate the information and resolve queries and makes class time truly interactive

Virtual classrooms, communication tools, and online digital portfolios also help engage parents and families in bridging home and school learning. They provide opportunities for essential information sharing and parental involvement. All these factors can strengthen the vital relationships that shape a young child's educational experience while reinforcing what a child learns at school in the home environment. Many technological devices are designed for singular use. Computers, smartphones, and tablets are typically meant to be used by one person at a time; however, the Department of Education explains that children learn more from content when parents or early educators watch and interact with children.

There are some activities to engage children with technology

Interactive Storytelling with Digital Books: Infuse the magic of storytelling by introducing interactive digital books. These captivating e-books allow children to actively engage with the story through touch, sound, and animation. By exploring narratives at their own pace, young learners develop a love for reading and imaginative thinking. Digital books also provide controlled and educational exposure to technology devices.

Augmented Reality (AR) for Immersive Learning: Immerse children in a world of discovery through augmented reality. Utilize AR apps and tools to transport students to different environments, such as animal habitats, historical landmarks, and outer space. This interactive experience stimulates curiosity, reinforces learning concepts, and creates lasting memories.

Encourage Creative Expression with Digital Art: Nurture artistic expression by introducing digital art tools. Child-friendly drawing apps and programs enable children

to explore their creativity without constraints. Experimenting with colours, shapes, and textures enhances fine motor skills and imaginative thinking.

Educational Gaming for Skill Development: Curate educational games that facilitate skill development. These purposeful games offer a fun and interactive way for children to enhance problem-solving, critical thinking, and early literacy and numeracy skills. Thoughtful selection ensures that screen time remains beneficial and aligned with learning objectives.

Virtual Field Trips for Global Exploration: Break the confines of the classroom with virtual field trips. Utilize VR headsets or 360-degree videos to transport students to famous landmarks, natural wonders, and cultural sites worldwide. This immersive experience broadens horizons, fosters wonder, and promotes cross-cultural understanding.

Language Learning through Interactive Apps: Leverage language learning apps designed for young children. Interactive apps with vibrant visuals and engaging activities facilitate language skill development, pronunciation, and vocabulary acquisition in a playful and rewarding manner.

Digital Portfolios for Growth Tracking: Create digital portfolios to document and showcase each child's progress. Utilize photos, videos, and written observations to provide parents with a comprehensive view of their child's development. Digital portfolios also serve as valuable assessment tools, helping teachers identify areas of strength and areas that require additional support.

The COVID-19 pandemic and its effects on education demonstrated how important technology is in the classroom. If the pandemic had occurred before the turn of the century, it's impossible to guess how millions of children and early educators would have kept up with lessons. Fortunately, with greater access to technology—computers, smartphones, tablets—teachers could still teach, connect, and strengthen their relationships with children through video-chat interactions.

Additionally, technology also allows families to strengthen their relationship with their children and with you. Digital portfolios and progress reports allow you to share what lessons the children are learning, but it also allows families to be more active participants in their child's education by tracking their progress. It enables you, the educator, and families to work collaboratively to strengthen and reinforce what they learn in the classroom.

Conclusion:

This paper connects several bodies of research and investigation under one conceptual framework to provide context and guidance for those who wish to use digital apps and other forms of technology to forge a true connection to nature by individuals. The key to successful technology integration in ECE is balance. Technology should supplement, **NOT REPLACE**, traditional learning methods. It should enhance learning, engage children in a fun and interactive way, and prepare them for a digital world while preserving early childhood education's hands-on, social, and creative aspects. Its presence fosters a holistic approach, nurturing cognitive, creative, and collaborative growth while providing young learners with the digital literacy skills they will undoubtedly require. When **integrated thoughtfully and responsibly**, technology empowers early childhood educators to inspire and equip the leaders of tomorrow.

References

1.Authors Own Thought

2.ONLINE REFRENCESE OF NEP 2020 Below mention

https://www.linkedin.com/pulse/integrating-technology-early-childhood-education-7-innovative-aamir#:~:text=By%20thoughtfully%20integrating%20technology%20into,the%20digital%20era%20and%20beyond.

https://degree.astate.edu/online-programs/education/master-of-science/early-childhood-education/integrating-technology-in-ece-classroom/#:~:text=The%20purpose%20of%20technology%20integration,to%20help%20achieve%20educational%20objectives.

https://www.nwf.org/~/media/PDFs/Kids-and-Nature/NWF_Role-of-Technology-in-Connecting-Kids-to-Nature_6-30_lsh.ashx

https://www.extramarks.com/blogs/emphasis-on-use-of-technology-in-nep/