The Review of Contemporary Scientific and Academic Studies
An International Multidisciplinary Online Journal
www.thercsas.com
ISSN: 2583-1380 Vol. 5 | Issue No. 7 | July 2025 Impact Factor: 6.53

A Review of Educational Technology Using Tools and Methods from Clay Tablets to AI

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 Crossref/DOI: https://doi.org/10.55454/rcsas.5.07.2025.001

Abstract: *The present paper describes the educational technology was evidently utilized in educational institutions and steadily developing for the purpose of knowledge acquisition. Educational Technology is defined as "the study and ethical practice of facilitating learning and improving performance by creating, using and managing appropriate technological processes and resources". Technology provides educators with new opportunities to engage and inspire students' brains. Beginning with clay tablets, the educational system has evolved to include digital boards worldwide.*

Keywords: AI, Clay Tablets, Digital Boards, Educational Technology, Educational Tools

Article History: **Received: 01 July- 2025;** **Accepted: 15 July- 2025;** **Published/Available Online: 30 July- 2025**

Introduction

In the distant past, educational technology was evidently utilized and steadily developing for the purpose of knowledge acquisition and human advancement. It is clear that from clay tablets to blackboards and, finally, to robots and artificial intelligence, educational technology has undergone an incremental but essential progression. Facilitating and improving the teaching, learning, and educational processes has been the goal of integrating technology into the classroom.

From the ancient abacus to portable calculators, from classroom film strips and slide projectors to virtual reality and next-generation e-learning, educational technology is constantly developing in novel ways that motivate both educators and learners. The ways we work, play, create, and communicate are all being altered by technology. Therefore, it makes sense that developments in digital technology are also opening up revolutionary possibilities in the field of education.

It is believed that technology is providing educators with new opportunities to engage and inspire students' brains. The possibilities of assistive technology, virtual and augmented reality, high-tech collaboration tools, gamification, podcasting, blogging, artificial intelligence, personalized learning, and much more are generating increasing interest nowadays.

Educational Technology

In order to enhance teaching and learning, educational technology studies how to analyze, create, develop, implement, and evaluate the learning process, learners, learning materials, and the instructional environment. Educational technology is described in the following manner by the Association for Educational Communications and Technology (AECT):

> *"the study and ethical practice of facilitating learning and improving performance by creating, using and managing appropriate technological processes and resources".*

It refers to the theory and practice of designing, developing, using, managing, and assessing learning processes and resources as instructional technology. Therefore, educational technology does not necessarily refer to physical technology; rather, it encompasses all legitimate and trustworthy applied education sciences, including equipment, as well as processes and procedures that are derived from scientific research. In a particular context, it may refer to theoretical, algorithmic, or heuristic processes. The practice of incorporating technology into education in a way that fosters a more varied learning environment and gives students a means of learning how to utilize it in addition to their regular tasks is known as educational technology.

Since it enables modern educators to incorporate new tools and technologies into their classrooms, educational technology is crucial to education. The learner-centeredness of the classroom can be enhanced and improved by teachers. It makes it possible for educators to interact with their pupils in novel, creative,

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and fair ways. Furthermore, instructors can develop their network and establish connections with educators both nationally and internationally. Consequently, the conceptual and technical evolution of instructional technology can be described in a number of distinct ways:

- The theory and use of educational approaches to learning is known as educational technology.
- Educational technology is defined as media and technological instruments, such as large online courses, that support the growth, exchange, and communication of knowledge.
- Tools for curriculum and student administration, as well as education management information systems, are examples of educational technology for learning management systems.

- Back-office administration tools for education include Learning Record Stores for storing and analyzing learning data and training management systems for budgeting and logistics.
- Courses in educational technology may be referred to as "computer studies" or "information and communications technology."

The Use of Educational Tools and Technology in Early Times

The history of literacy discusses how ancient societies used literacy tools and materials to read, write, and communicate. Here is a description of the few tools that were employed in ancient writing and literacy, along with the ways that society benefited from them: India's ancient vegetation, Iran's stone constructions and later tokens, Ancient Africa's shells, and the Americas' clay. Each of these texts possessed unique spiritual, commercial, and political agency. Based on scholarly and journal reports, all of the items were discovered in an archaeological setting, which examined literacy among people from the past (Rocklein, Constance, 2018).

In the conventional/traditional teaching/learning process, chalk, blackboards, and "dust and mud sketching" are the tools or aids that teachers employed as typical teaching tools. As teaching tools, natural elements, real things, and specimens were written down and shown. Both teachers and students had access to books as a traditional or conventional resource.

From Clay Tablets to Digital Board

The fundamental human thirst for knowledge is what drives the quick changes in educational development. Beginning with clay tablets, the educational system has evolved to include digital boards worldwide. The largest shift in the development of education is being implemented globally using a variety of technologies. The level of the educational system has advanced from traditional to contemporary. Historical evidence for the gradual development of technology employed in education may be found in the following descriptions of tools and assistance.

Clay Tablet: In India, it was initially introduced in the eleventh century. The first and oldest board that was kept safe for data and information was the clay tablet. The board is designed in a way that makes it simple to write down and use water to erase any mistakes or other information.

Wooden Slate: In the 18th century, it was first introduced in Europe and America. The pupils found this slate to be very beneficial and educational. Anything may be simply written on and removed from this slate. However, pupils could not afford it, as it was very expensive.

Blackboard: In the 19th century, James Pillans made the initial discovery. A blackboard is an improvement over a wooden slate that modifies the teaching process and gradually shifts it toward a more contemporary method. Therefore, considering its size, this board assists in the learning of large youngsters in the classroom. Blackboard is used by all educational institutions worldwide, including in India.

Green Board: It is a novel educational concept that was first presented in the late 1960s. Students are more motivated to learn and grow when they are using the green board. When writing, it appears cleaner and is easier for eyes to see. In India as well as other parts of the world, it is the actual mode of modern education.

White Board: It is another extremely exciting educational adventure. Whiteboard falls under the category of advanced learning. It was first identified worldwide in the 1990s. Consequently, in order to improve

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education and the learning process and to make their lessons more successful, almost every school, college, or institute uses the Whiteboard feature.

Digital Board: There have been the most significant and revolutionary changes to the global educational system since the introduction of the Digital Board. It offers practically every function, including the most sophisticated learning functions. Every school in the world that accepts digital whiteboards is advancing the smart learning process. Every prestigious school's digital board is visible for its highest level of expertise. With the aid of software, it operates and gives students a variety of information in the most effective way.

In this way the evolution of education, learning pattern and changes in education are taken place. It is the brief discussion of the evolution of education system from Clay Tablets to Digital Board all over the World. And now a days the latest technology- AI (Artificial Intelligence) is widely used for Educational Process.

AI (Artificial Intelligence)- An Essential Part of Educational Process

Now a days, AI (artificial intelligence) is the key element of education process. John McCarthy coined the phrase artificial intelligence for the first time in 1956 (McCarthy et al., 2006). The researchers gathered at that time to refine and clarify the ideas surrounding thinking machines, which had been highly diverse up to that moment.

The definitions of artificial intelligence start to change depending on what an AI system is intended to accomplish. There are three main reasons why people invest in AI development: to create systems that think exactly like humans (strong AI), to simply get systems to function without understanding how human reasoning works (weak AI), or to use human reasoning as a model but not necessarily the ultimate goal (as cited in Marr, 2018).

AI has the potential to revolutionize how the educational system operates, boost institutions' competitiveness, and empower educators and learners at all levels. voice assistants, including Bixby, Alexa, Siri, and Google Assistant. Other noteworthy choices include Mycroft, Cortana, and several AI-powered assistants for particular jobs, such as PolyAI for call centers or Otter for meetings. Without speaking to the teacher, all of these AI-powered assistants are used to interact with different learning resources at any time and from any location. Intelligent content refers to a variety of educational resources, such as personalized interfaces and digital textbooks. Students can study a variety of courses and curricula from across the world by utilizing artificial intelligence's capabilities.

The Idea of Educational Technology

In order to analyze every facet of the human learning process and the issues encountered in this field, as well as to design, implement, assess, and oversee solutions to these issues, educational technology is a complicated and integrated process that involves people, procedures, ideas, devices, and organizations (Haran, 2015).

The use of technical instruments, particularly computer-based ones, in teaching and learning procedures to increase educational efficacy and reach is known as technology in education. By enabling access to digital resources that enhance academic content, this inclusion enables educators to revolutionize conventional approaches and encourage more individualized and participatory learning.

Rogers (2000) emphasized that instructional technology also helps students acquire critical thinking, digital literacy, and the capacity to work together virtually. Learning becomes more dynamic and adaptable when these resources are used because teachers can use interactive programs and multimedia materials that inspire students and increase their learning chances both within and outside of the classroom.

According to Tony Bates (1997), technology is a basic resource that makes it possible to include cutting-edge technologies to enhance learning's efficacy, quality, and accessibility. In addition to enabling remote access to courses and programs, technology is revolutionizing the conventional educational paradigm by bringing in more adaptable and dynamic teaching strategies. In order to facilitate communication between professors and students, Bates claims that these tools also encourage collaborative learning. By encouraging more flexible and individualized learning and increasing access to resources and knowledge, technology integration in education has completely transformed educational systems.

The Role of Technology in Education

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According to Kumar, P. V. (2024), technology plays an essential and inescapable role in education in the current environment. The speed at which technology is developing in education is unavoidable because it is occurring globally. In particular, technology has proven to be beneficial and revolutionary in educational settings. Through engaging interactive learning experiences and online resources that help clarify complex subjects, technology equips students with the skills they need to thrive in the classroom and beyond. The future of technology in education is bright and exciting. virtual and augmented reality, machine learning, and artificial intelligence.

All things considered, technology has had a significant impact on education and altered how we learn. It has made learning more individualized, improved communication and teamwork, opened up new avenues for creativity and innovation, and prepared students for the future. It will be fascinating to see how technology advances and how it influences and improves the educational system.

Pros and Cons of Technology in Education

In order to ensure that technology is used effectively in modern education, it is crucial to comprehend its pros and cons. The current educational system is being reshaped by the use of technology in the classroom, giving pupils access to digital resources that foster creativity and learning. Technology integration has several advantages, including increased student engagement and individualized instruction, but in order to be used effectively in educational settings, issues like over-reliance and potential distractions must be addressed.

Nonetheless, there are numerous advantages to using technology in the classroom, some of which are as follows for your understanding:

- In the classroom, technology gives students access to updated knowledge and easy-to-use resources that improve the learning environment.
- Assisting students in acquiring the necessary digital literacy and technological abilities
- Utilizing new technologies to enhance their academic achievement and problem-solving abilities.
- Encouraging active learning and individualized education in traditional educational settings
- Having access to latest and high-quality information
- Incorporating technology into the classroom promotes in the development of necessary tech skills that are vital in the contemporary digital environment.

Technology in the classroom has many benefits, but for the educational system to grow holistically, its use must be balanced with in-person interactions. The introduction of these modifications in the educational system has generated varying opinions, particularly when they are implemented so abruptly and in such a short period of time. Realistically speaking, though, the benefits still greatly exceed the drawbacks.

Therefore, a persistent focus on drawbacks should not be interpreted as a wish to go back to traditional schooling, but rather as a cause for caution and the opportunity to better identify the shortcomings of the educational technology and approaches. It is the responsibility of educators and educational institutions to assess the drawbacks and enhance instruction in both virtual and traditional classrooms. Teachers and educational institutions must be vigilant and careful when utilizing technology, and they must also ensure that students are using it appropriately.

Although there are many benefits to using technology in the classroom, at the same time, there are also disadvantages. Over-reliance on technological devices can lead to interruptions, hinder face-to-face connection, and create a digital divide among students.

Conclusion

The present paper describes the educational technology was evidently utilized and steadily developing for the purpose of knowledge acquisition and human advancement. It is believed that technology is providing educators with new opportunities to engage and inspire students' brains. The fundamental human thirst for knowledge is what drives the quick changes in educational development. Beginning with clay tablets, the educational system has evolved to include digital boards worldwide. Thus, the evolution of education system

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Conflict of Interest: The authors declare "No conflict of Interest".