

The Use of Technology in the Education Sector

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Received: 15-02-2026 , Accepted: 13-06-2026, Published: 16-06-2026

Abstract: This research aims to identify the technological means and their applications in the Algerian education system, as well as the extent to which they contribute to improving educational productivity. It also examines the effectiveness of technological tools in enhancing the absorption of educational programs and highlights the importance of technology in making life more advanced and convenient. Thanks to modern technologies that keep pace with development and modernization, the world has become a global village, resulting in the rapid expansion of the intelligent digital world.

Keywords: Technology, Education, Algerian Educational System.

Introduction:

Technology has permeated every aspect of our modern world; it is ever-present, and its use has therefore become essential and an inevitable part of life, given its immense benefits, particularly in the realm of knowledge. It has helped to raise the quality and effectiveness of education, whilst also helping to eliminate the boredom and routine of outdated educational programs. This is thanks to modern tools that foster innovation, creativity and excitement, opening up horizons in line with the times and their developments. It has also made the teacher's job of instructing learners easier.

Hence, we highlight these technological tools and the extent of their contribution to raising and improving the educational sector in this research paper entitled: 'The Uses of Technology in the Educational Sector (A Study Based on This Thesis)'. This research is based on the following questions:

What is the concept of educational technology? What are its most significant contributions to improving the field of education? Are technological tools used in all Algerian schools? To what extent do technological tools influence the efficiency of the Algerian educational system?

1. **The term ‘technology’** (Al-Hila, 2022, p. 6)¹:

This word is virtually ubiquitous; it is ever-present and unmistakable, causing anyone to immerse themselves in its realm without realising it. It has inevitably established itself as indispensable, being essential for both the educated and the illiterate, as it is accessible to all. The word ‘technology’ (Technologie) is an ancient Greek term that has been adapted into Arabic as ‘tekniyat’, which is divided into two words: ‘Techne’, meaning technical skills, and ‘logie’, meaning study or science. Thus, the word ‘technologies’ means the science of skills or arts, that is, the logical study of skills to perform a specific function, and it has been associated

The concept of technology has been used in industry for over a century and a half, before it entered the world of education (Al-Hila, 2022, p. 13).

The term ‘technology’ also refers to organised scientific knowledge associated with invention and discovery, and the processes that utilise this knowledge in production, services and environmental management (Al-Sayed, 1997, p. 175).

The term also refers to the systematic application of scientific or organised knowledge to practical purposes. Technology is fundamentally based on the availability of certain elements, including:

a body of knowledge derived from research, studies and theories; human and non-human elements; and the application of knowledge in a systematic and organised manner to address these elements, their interconnections, and the relationships or interactions between them (Salama, 2009, p. 63). Or it is the science concerned with the systematic application of scientific research and theories, and the deployment of human and non-human elements in a specific field to address its problems and design appropriate scientific solutions, as well as developing, implementing, managing and evaluating them to achieve specific objectives.

It is therefore clear from the above definitions that technology is a set of scientific techniques and theories applied to research, used to solve problems and address scientific facts and laws in an organised manner; it is also a means of scientific development that compensates for the limitations of human capabilities and physical and intellectual faculties.

2. **The term ‘education’:**

Education is a deliberate, purposeful and structured process that takes place in institutions established by society specifically to provide education and facilitate learning for its members in formal schools and universities (Mazen, 2008, p. 34).

The word ‘teaching’ refers to: the process of give and take, dialogue or interaction between the teacher and the learner in the classroom or lecture theatre, or in laboratories, Teaching is a purposeful human activity in which the teacher interacts with the learner, the subject matter and the learning environment; this activity plays a major role in developing the cognitive, skill-based and emotional aspects of those involved in the educational process.

Education is defined as the deliberate process carried out by institutions established and dedicated to this purpose; education is an aspect of the educational process or one of its core elements, and it involves a dynamic, real-world interaction (Samara, 2008, p. 67).

3. The term ‘educational technology’:

It is defined as an integrated process based on the application of a framework of science and knowledge about human learning and the use of human and non-human learning resources, emphasising the learner’s activity and individuality through an organisational approach to achieve educational objectives and attain more effective learning (Salama, 2009, p. 63)

It is also a modern term that emerged as a result of the scientific and technological revolution that began in 1920, when the scientist Finn coined the term. The concept of educational cultures in the Arab world has evolved to correspond to the term ‘educational technology’, which has become widely used in the Western world (Hamdi, 2008, p. 6).

Educational technology is defined as an integrated process based on the classification of the structure of cognitive sciences relating to human education and the use of human and non-human educational resources. It emphasises the teacher’s activity and individuality through a systematic approach to achieving educational objectives and attaining more effective education. This term refers to processes relating to the design, implementation and organisation of the teaching and learning process (Al-Sayed, 1997, p. 77).

It is also considered an interlinked and interrelated process involving the individuals, people, methods, tools, ideas and organisations necessary to analyse the problems inherent in all aspects of human education, devise and implement appropriate solutions, evaluate the results, and manage the associated processes.

As a comprehensive definition, it can be said that educational technology is an integrated system that brings together people, machines, ideas, opinions, working methods and management according to a specific system that operates in a problem-solving manner; or, in other words, the use of a systematic scientific approach to thinking, planning, working and development in the field of education (Al-Farra, 1999, pp. 125 -126).

4. Functions of Educational Technology (Al-Farra, 1999, pp. 130- 131):

By following the precise and correct methods of educational technology, we achieve positive and satisfactory results, including:

- ♣ It helps to emphasise the importance of direct sensory experience, whilst placing learners in situations that encourage them to think and use their senses.
- ♣ It makes education a personalised process, enabling each learner to engage in self-directed learning.
- ♣ Developing educational curricula so that they are capable of incorporating modern technological developments and introducing new concepts into education.
- ♣ Educational technology can establish the educational process on a scientific basis.

Thus, educational technology is now viewed as a systematic approach to the design, implementation and evaluation of the teaching and learning process.

5. The Educational System:

The educational system in any country reflects the cultural, political and social aspirations and choices of its people, and seeks to establish a system suitable for the sound

social upbringing of future generations, through the culture, awareness and training of teachers, and their commitment to keeping pace with developments in the fields of education and teaching, and this is a fundamental factor in the success of the educational system.

A. Definition of the educational system: It is the sum of various scientific, political, social, economic, administrative, local and global elements and components that seek to promote human development and prepare the individual for life. In Algeria, it is no different from other global systems; as they share similar principles and dimensions in terms of their general concept; they are distinguished only by specific orientations in the prevailing cultural, social and economic patterns of society, as well as by the reference points that form the source of their philosophy and legislation, and by the programmes of their governments that define their objectives, aims and goals (Jaber & Rahima, p. 2).

The education system is, first and foremost, a political decision and a national priority in which the role of the state, the needs of citizens and the demands of comprehensive development are paramount. The education system in Algeria constitutes an administrative apparatus governed by legal and social relationships, as well as educational and cultural imperatives that are politically and economically framed. It has been influenced by several trends, foremost and most dangerously among them being Westernising ideology, which has sought to undermine the Algerian identity (Jaber & Rahima, p. 2).

6. Definition of the education system:

Before addressing the definition of the education system, we must first define the system and education:

A. The system:

defined as a structure characterised by integration and interdependence among its components and elements, with each element functionally and tightly interlinked with the others, based on the dynamic interaction between the elements and components of this system (Al-Sayyid, 1993, p. 41).

It is evident from this definition that the system integrates its various elements so that each element can perform specific functions.

The set of elements, interconnected by links and each performing a specific function, forms a structure with a defined function and role. This structure is characterised by specific features that distinguish it from its external environment (Watfa & Al-Shihab, 2004, p. 41).

We note from the preceding definitions that they agree that a system represents a structure consisting of several parts, each with a specific function, and each part complements the other in a harmonious, integrated structure.

B. Education:

Education takes on various meanings and forms; for the Arabs, it refers to politics, leadership and development, which philosophers termed 'politics', for politics concerns a man's family and children, and they call the one who raises a child 'the educator'. It also denotes both morality and knowledge (Turki, 1998, p. 18).

It is also defined as the revitalisation, nurturing, continuity and well-being of life, as the word 'education' is derived from a Latin root and carries the same original meanings, namely development in life (Al-Khamisi, 2000, p. 36).

It follows from the above that 'education' conveys several meanings, such as: development, growth, guidance and discipline, as reflected in various systems, which are manifested through an individual's character; its aim is the formation of individuals (Mattawa, 1995, p. 13).

7. The educational system: it has several definitions, which we summarise as follows:

It is defined as: the fundamental and interacting components in accordance with the framework set out in various Algerian constitutions, particularly the Constitution of November 1996, which clarified the political, social and economic orientations of the Algerian state in the context of a multi-party system, economic openness and the preservation of the Algerian society's national identity, authenticity and values, and thereby the formation of individuals who are committed to and proud of their values; it is thus the set of structures and human and material resources entrusted by society with the education of individuals .

It is evident from this definition that the Algerian education system derives its laws from the Constitution, seeks to preserve national identity and individuality amidst openness, and consists of several complementary components.

It is also defined as a social system comprising the social roles and norms that serve to transmit knowledge from one generation to the next, where this knowledge includes values and patterns of social behaviour that seek to fulfil the needs and aspirations of individuals within society (Ahmed, 1994; Madas, 2003, p. 272).

It is clear from the above that the education system consists of human and material elements that perform educational functions, such as instilling social and cultural values in individuals, and working to develop and advance society.

8. Objectives of the educational system:

The Algerian educational system seeks to achieve the following objectives (Higher Council for, 1998, pp. 33-34):

Firstly: to build a cohesive, integrated society that is proud of its heritage and confident in its future, based on:

1- National identity, embodied in:

- Islam as a faith, a way of life and a civilisation, whose spiritual and moral content, as well as its cultural and humanitarian contribution, must be highlighted, and whose role as a unifying force for Algerian society must be strengthened.
- Arabism as a civilisation, culture and language, embodied by the Arabic language, which must be the primary vehicle for knowledge at all stages of education, and a means of creativity, communication and social interaction.
- Amazigh culture and heritage, an integral part of the national identity that must be nurtured, promoted and enriched within the framework of national culture (Higher Council for, 1998, pp. 33-34).

Secondly: The development of the citizen and the acquisition of the skills and abilities that qualify them to (Higher Council for, 1998, p. 33) :

- 1- Build the nation in line with national objectives and the demands of the modern age.
- 2- Consolidate national identity.

3- Promote a national culture rooted in the nation's foundations and civilisation, whilst remaining open to global culture.

9. The most prominent technological tools used in Algerian schools:

There are many modern tools used in the education system, including, for example:

The use of audiovisual tools such as overhead projectors (OHPs), which rely on both sight and hearing, stimulating learners' engagement and response to sound and images.

Computers: a modern tool based on advanced technology, displaying various texts, images, sounds, programmes and more, providing learners with a comprehensive educational model.

- Communication between teachers and learners via email saves time and effort.
- Access to e-books included within the education system.
- Social media platforms that facilitate communication between learners, teachers and parents to develop skills and exchange information, and monitor learners' progress by displaying their marks on the Ministry of National Education's websites (Tanqab, p. 189).

10. The importance of educational technology in improving the Algerian education system (Fahmy, 2006, p. 226):

Algerian education has undergone several developments and changes, evident in the use of technology which has brought about numerous improvements that have shaped the reality of education and teaching, and which have played a major role in:

- Raising pupils' academic achievement through high-quality electronic resources that help them understand, concentrate and analyse by displaying images, examples and other illustrative materials.
- Enabling learners to use computers for research and assessment purposes, as well as enabling teachers to store information, files and programmes and access them in the easiest way possible.
- Computers have become a subject taught to pupils at various educational levels, and this subject is one of the most important in the curriculum.
- Storing student data such as name, date of birth, address, courses taken, grades achieved and other data used when classifying students and allocating them to different courses; similarly, storing test results that can be utilised in counselling and guidance processes (Fahmy, 2006, p. 226).
- Promoting self-directed learning, which helps teachers to cater for individual differences, thereby improving the quality of learning and teaching. Furthermore, the use of computers as an educational technology tool, by providing slides, films and audio recordings, reduces the time and effort teachers spend on routine teaching tasks, thereby helping them to invest their time and effort in planning learning situations and experiences (Hamza, 2006, p. 113).
- Sending homework and messages, and responding to queries, whereby the teacher corrects the answers and sends them back, saves both time and effort (Hamza, 2006, p. 113).

- Technological tools contain elements of excitement, colour and stimulation, which help to capture the learner's attention and encourage engagement with the educational material .¹
- Providing enjoyment, participating in computer games, watching films and reading magazines, etc., helps to raise the learner's academic and intellectual level.
- The vast abundance of information sources, such as e-books, periodicals, educational websites, databases and encyclopaedias, all contain audio and visual information that provides a relevant and engaging description of the course content (Jaber & Rahima, p. 158).
- Educational technology promotes learning and quality assurance, and improves the teaching and learning process.
- Conveying information to the learner and supporting the researcher in the educational process.
- Simplifying the learning process and fostering interaction between teacher and learner outside the classroom to open up new horizons in education.
- Technology solves human problems, fulfils human needs, enhances intellectual abilities, broadens understanding and stimulates the imagination.
- Educational technology compensates for the shortcomings in human capabilities and strengths.
- It ensures the achievement of cognitive, skill-based and emotional objectives, whilst transforming a monotonous atmosphere into one of interaction, dynamism and motivation amongst learners, thereby inspiring them to seek and love knowledge, and to engage with the subject matter through dialogue, discussion and reasoning.
- It fosters scientific thinking, aids teamwork, and encourages creativity, innovation, and skills in research, reading, exploration and discovery.
- Technological tools play a key role in the teaching and learning process, as they engage the learner's various senses and involve them directly in grasping the meaning of the educational material.²

Conclusion:

Based on the above, it is clear that the relationship between technology and education is one of complementarity, such that its success depends on the extent of their compatibility. Technological tools have accompanied humanity since the dawn of time; they are the primary source of human learning, Drawings, observations, images and experiments are all ancient sources that have evolved and changed alongside human development, until they became an effective focal point in the process of learning and teaching.

¹ Amer Ibrahim Qandilji and Iman Fadel al-Samara'i, Dar al-Masira, Amman (Jordan), 1st ed., 2009, p. 158.

² Ibid., p. 281.

- Technology plays a vital role in education due to its characteristics and advantages, which give education a new meaning and contribute to the development of the human personality.
- Educational technology enhances the efficiency of the learning process, as it saves time and effort by accelerating the learning process. This is achieved by providing diverse teaching methods tailored to the individual differences between learners and their learning circumstances, whilst also offering greater efficiency and effectiveness.
- Educational technology contributes to enhancing pupils' understanding and learning; learning occurs more easily and to a greater degree whenever educational tools are used, by enhancing sensory perception and providing the learner with feedback, resulting in increased learning in both quantity and quality.
- Educational technology has placed the student at the centre of the educational process; the teacher's role is no longer limited to the transmission of information and rote learning, but the educational process has become a collaborative effort between student and teacher. Furthermore, educational technologies have provided opportunities for self-directed learning, enabling students to access a variety of academic resources anywhere and at any time.
- Thanks to technology, geographical boundaries have been removed, distances have been bridged, and it has become easier to access, collect, store and instantly transmit information from anywhere, transcending the constraints of time and space.
- The education system is considered the cornerstone of all development and progress; therefore, the introduction of technology into schools gives them the capacity and advantage to provide high-quality, sophisticated education and systematic, organised thinking that ensures the stability of future generations and the advancement of the nation. This modern technology has imposed itself upon us, whether we like it or not.

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