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Abstract

This study seeks to identify technological tools and their applications in the Algerian educational sector. It also examines the extent to which such tools contribute to improving students' academic performance. The study further explores the effectiveness of these technologies in facilitating learners' understanding of educational programs. It highlights the role of technology in enhancing the quality of life by providing modern means that keep pace with rapid global development and digital transformation. These advances have turned the world into a small interconnected village shaped by the expansion of the intelligent digital sphere.

Keywords: Technology; Education; Algerian Educational System.

Introduction

Technology has entered nearly every aspect of contemporary life. It is present in all fields, which makes its use essential and unavoidable. Its benefits are considerable, especially in the domain of knowledge. Technology has helped increase the efficiency of teaching and improve its outcomes. It has also reduced monotony in traditional educational programs by offering modern tools that foster creativity, innovation, and engagement. These tools open new horizons that align with the demands of a changing world. They also make the teacher's work easier and more effective.

From this perspective, the present paper examines technological tools and their contribution to enhancing the educational process. The study, entitled Using Technology in Education, is guided by the following research questions:

1. What is the concept of educational technology?
2. What are the main contributions of technology to the improvement of teaching and learning?
3. Are technological tools used in all Algerian schools?

4. To what extent do technological means influence the efficiency of the Algerian educational system?

1. The Term Technology (Al-Hila, 2022, p. 13; Hamdi, 2008, p. 6)

The word technology has become inseparable from almost any field. It appears everywhere, and people interact with it often without noticing. It has imposed itself as a necessity that neither the educated nor the illiterate can avoid. The term “technology” (Technologie) is derived from ancient Greek. It consists of two parts: techne, meaning technical skills or arts, and logie, meaning study or science. Thus, the term refers to the science of skills or arts. It implies the logical study of skills needed to perform a specific function. For more than a century and a half, this concept was linked to industrial fields before entering the domain of education.

Technology also refers to organized scientific knowledge related to invention, discovery, and the processes that apply this knowledge in production, services, and interaction with the environment (Al-Sayyid, 1997, p. 175). The term also denotes the systematic application of scientific or organized knowledge to practical purposes. Technology relies on several components: a knowledge base derived from research, human and non-human elements, and the methodological use of this knowledge to manage various components and the relationships among them (Salama, 2009, p. 63).

It can also be defined as the science concerned with the systematic application of research and scientific theories. It employs human and material resources within a specific context to address problems, design suitable solutions, develop them, implement them, manage them, and evaluate them to achieve set objectives (Mazen, 2008, p. 34).

In light of these definitions, it becomes clear that technology is a set of techniques and scientific theories applied through research. It is used to solve problems and process scientific facts and laws in an organized manner. It is also a means of scientific advancement that compensates for the limitations of human physical and intellectual capacities.

2. The Concept of Education

Education is a deliberate and purposeful process. It takes place within institutions that society establishes to provide instruction and to ensure learning in formal schools and universities (Mazen, 2008, p.10).

The term teaching refers to a process of exchange, dialogue, or interaction between the teacher and the learner inside the classroom, lecture hall, or laboratory. Teaching is a human activity with a clear aim. The teacher interacts with the learner, the content, and the learning environment. This interaction contributes greatly to the cognitive, practical, and emotional growth of all participants in the educational process (Khalil Ibrahim Bashir, 2010, p.19; Ibrahim Abdullah Nasser and Atif Omar bin Turaif, 2009, p.290).

Education is also defined as an intentional process carried out by institutions created and dedicated to that purpose. It forms one dimension of the educational process and involves real and active interaction (Samara, 2008, p.67; Mohamed Sabri Hafiz Al-Sayyid and Mahwar Al-Bahiri, 2006, p.10).

3. The Concept of Educational Technology

Educational technology is defined as an integrated process. It is based on applying a body of scientific knowledge about human learning and on using both human and non-human learning resources. It emphasizes the learner's activity and individuality and follows systematic organisational methods to achieve educational goals and promote more effective learning (Salama, 2009, p.63).

The term is modern. It emerged as a result of the scientific and technological revolution that began in 1920, when Finn introduced this name. The concept of educational cultures in the Arab world later evolved to correspond to the term educational technology, which became widely used in the West (Hamdi, 2008, p.6).

Educational technology is also described as an integrated process that organizes a structure of cognitive sciences related to human learning. It uses human and non-human educational resources and highlights the teacher's activity and individuality within a systems approach. Its aim is to achieve educational objectives and produce more effective learning. The term refers to the processes of designing, implementing, and evaluating teaching and learning (Salama, 2009, pp.77–78).

It is also viewed as a complex and interconnected process. It involves individuals, methods, tools, ideas, and organizational structures needed to analyze problems in all areas of human education. It supports the development of suitable solutions, their implementation, the evaluation of outcomes, and the management of all related processes (Al-Farra, 1999, pp.125–126).

In a broad sense, educational technology may be described as an integrated system. It brings together the human element, machines, ideas, opinions, and administrative and practical methods within a specific framework. It relies on problem-solving procedures and on the organized scientific method in thinking, planning, action, and development in the educational field.

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

Using accurate and correct methods of educational technology leads to several positive and beneficial outcomes. Among these are:

- Emphasizing the value of direct sensory experience and placing learners in situations that motivate them to think and to use their senses.
- Giving education a more individual character, as it enables each learner to study independently.
- Developing curricula so that they can absorb modern technological advances and introduce new concepts into education.
- Establishing the educational process on scientific foundations.

Consequently, educational technology has come to be seen as a systematic method for designing, implementing, and evaluating the teaching–learning process.

5. The Educational System

The educational system in any country reflects the cultural, political, and social aspirations of its people. It seeks to offer an appropriate structure for the social upbringing of new generations.

This depends on the teacher's culture, awareness, preparation, and ability to follow new developments in education. These factors are essential for the success of the educational system.

A. Definition of the Educational System

The educational system is the result of several scientific, political, social, economic, administrative, local, and global elements. It aims at human development and preparing the individual for life. In Algeria, it does not differ from other systems in the world. It shares the same basic principles and general dimensions. What distinguishes it are the cultural, social, and economic orientations that prevail in society, along with the philosophical and legal references that guide it and the governmental programs that define its goals (Jaber Nasser Al-Din and Ben Isma'in Rahima, p.2).

The educational system is first a political decision and a national requirement. It reflects the role of the state, the needs of citizens, and the demands of comprehensive development. In Algeria, it has developed into an administrative structure governed by legal and social relations and by cultural and educational motives shaped by political and economic factors. It has been influenced by several intellectual currents, the most significant of which is Westernization, which sought to reshape the Algerian identity (Jaber Nasser Al-Din and Ben Isma'in Rahima, p.2).

6. Definition of the Educational System Structure

Before defining the educational system as a whole, it is necessary to explain the meanings of system and education.

A. System

A system is a structure in which its components and elements are integrated and interconnected. They are linked through strong functional relations based on active interaction among the parts of the system (Ali Saad Waṭfa and Ali Al-Shihab, 2004, p.41).

This definition shows that a system brings its elements together to perform the functions assigned to each part.

A system consists of a set of elements connected by relations that give the structure a specific function and role. This structure has clear features that distinguish it from its surrounding environment (Ahmad, 1984, p.21; Malham, 2000, p.376).

These definitions indicate that a system is a structure composed of several parts. Each part has its own function. Each one completes the others to form a coherent and integrated whole.

B. Education

Education carries several meanings. In Arab thought, it referred to governance, leadership, and development. Philosophers used the term policy to describe it. The person responsible for raising a child was called the "disciplinarian." The term also referred to both ethics and knowledge (Rabeh, 1998, p.18).

Education is also defined as sustaining life and ensuring its growth and continuity. The word education comes from a Latin origin and carries the same early meaning of development and progress (Al-Khamisi, 2000, p.36).

Education is also a tool of society. It creates social and cultural relations among individuals. It is a social process that interacts with all systems of society and reflects its image. It also helps develop the individual's social personality (Matawi', 1995, p.13; Al-Sayyid M., 1993, pp.74–75).

From these views, education denotes several ideas: increase, growth, guidance, and discipline. It appears in different social systems and is reflected in the individual's character. Its purpose is to prepare and shape individuals.

7. The Educational System

The educational system has been defined in several ways. One definition describes it as the basic and interacting components that operate according to the principles outlined in the various Algerian constitutions. This is especially clear in the Constitution of November 1996, which set the political, social, and economic orientations of the Algerian state in a context of political pluralism, economic openness, and preservation of national identity, authenticity, and collective values. Its aim is therefore to form an individual who is firmly attached to these values. The system is thus a set of human and material structures and resources through which society entrusts the task of educating its members (National Institute for the Training of Education Personnel).

This definition shows that the Algerian educational system derives its laws from the constitution. It seeks to preserve national identity and cultural character in an open environment. It is composed of several elements that complement one another.

The system is also defined as a structure within the social order that includes roles and social norms used to transmit knowledge from one generation to the next. This knowledge includes values and forms of social behavior that aim to meet the needs and aspirations of individuals within society (Madas, 2003, p.272; Ahmad H., 1994, p.7).

The previous definitions indicate that the educational system is made up of human and material elements that perform essential educational functions. These include the transmission of social and cultural values and the development and advancement of society.

8. Goals of the Educational System

The Algerian educational system seeks to achieve the following aims (Higher Council for Education, General Principles of the New Educational Policy and Basic Education Reform, 1998, pp.33–34):

First: Building a cohesive society rooted in its authenticity and confident in its future

This is based on the following elements of national identity:

- **Islam** as a belief system, ethical framework, and civilization. Its spiritual and moral content must be highlighted, as well as its cultural and human contribution. Islam should continue to serve as a unifying factor for Algerian society.
- **Arab identity** as a civilization, culture, and language. This identity is embodied in the Arabic language, which should remain the primary tool of knowledge at all levels of education and a medium for creativity, communication, and social interaction.
- **Amazigh identity** as a culture and heritage, which forms an integral part of the national character. It must be preserved, developed, and enriched within the national cultural framework (Higher Council for Education, 1998, pp.33–34).

Second: Preparing the citizen and providing him with the competencies needed to:

- Contribute to nation-building in line with national orientations and the demands of the modern world.
- Strengthen national identity and its foundations.
- Promote a national culture rooted in the heritage and civilization of the nation while remaining open to global cultures (Higher Council for Education, 1998, pp.33–34).

9. The Importance of Educational Technology in Improving the Algerian Educational System (Fahmi, 2006, p.226)

Algerian education has undergone several developments and changes. This is seen in the use of technology, which has led to significant improvements in teaching and learning. It has played a major role in the following:

- Raising students' academic achievement through high-quality electronic tools that help them understand, concentrate, and analyze by providing images, examples, and other visual aids.
- Enabling learners to use computers for research and assessment. It also assists teachers in storing information, files, and programs and retrieving them easily.
- Introducing computer studies as a subject taught at different school levels. This subject has become one of the most important in the curriculum.
- Storing student data such as names, birth dates, addresses, courses, and grades. Such data is used to classify and distribute students across different academic tracks. Examination results can also be stored and used for guidance and counseling (Fahmi, 2006, p.226).
- Supporting self-learning, which helps teachers address individual differences. This contributes to improving the quality of teaching and learning. The computer, as an educational technology tool, presents slides, films, and audio recordings. It reduces the teacher's routine workload, allowing him to invest more time in planning meaningful learning experiences (Al-Jabbali, 2006, p.113).
- Sending homework, messages, and responses to students' questions. The teacher corrects answers and sends them back, saving time and effort (Al-Jabbali, 2006, p.113).
- Offering features such as color, movement, and stimulating content that attract learners' attention and increase their engagement.
- Providing enjoyment through electronic games, films, magazines, and other multimedia sources. These activities contribute to raising the learner's academic and intellectual level (Amer Ibrahim Qandilji & Iman Fadil Al-Samurai, 2009, p.158).

- Making available a vast range of information sources, such as electronic books, journals, educational websites, databases, and encyclopedias. These sources contain audio and visual materials that present course content in an engaging way (Jaber, 2009, p.281).
- Supporting effective learning, enhancing quality, and improving the overall teaching–learning process.
- Delivering information to learners and supporting researchers in their academic work.
- Simplifying learning and creating opportunities for interaction between teacher and learner outside the classroom. This opens new horizons in education.
- Helping solve human problems, meeting needs, expanding cognitive abilities, and stimulating imagination.
- Compensating for human limitations and supporting areas where individuals may lack capacity.
- Achieving cognitive, practical, and emotional objectives. It transforms routine learning into active and engaging experiences. It increases learners’ motivation, curiosity, and participation in discussions and inquiry.
- Developing scientific thinking, encouraging teamwork, and promoting creativity, innovation, and research skills.

Educational technology plays a central role in teaching and learning. It activates the learner’s senses and engages him directly in understanding the meaning of the educational content (Jaber, 2009, p.281).

Conclusion

The discussion shows that the relationship between technology and education is a complementary one. The success of each depends on the degree of harmony between them. Technological tools have accompanied human beings since the beginning of creation. They were the first sources of learning. Drawings, observations, images, and experiments are all early forms that developed as humans advanced, until they became a central part of teaching and learning.

Educational technology is important because it possesses features that give learning a new meaning and support the growth of the human personality.

Educational technology also raises the efficiency of learning. It saves time and effort, and it accelerates learning by offering varied methods that suit individual differences and learning conditions. It therefore provides more effectiveness and better outcomes.

Technology helps increase students’ understanding and learning. Learning becomes easier and deeper when instructional tools are used. This happens because these tools strengthen sensory perception and give the learner immediate feedback. As a result, learning increases in both quantity and quality.

Technology has also placed the learner at the center of the educational process. The teacher’s role is no longer limited to transmitting information. The learning process has become a shared activity between teacher and learner. Educational technologies have also created opportunities for self-learning and enabled students to access diverse scientific resources at any time and place.

Technology has removed geographical barriers. It has brought distances closer. It has made it possible to access, collect, store, and transmit information instantly, beyond the limits of time and space.

The educational system is the foundation of every form of progress. Introducing technology into schools gives the system greater effectiveness and allows for high-quality learning and organized thinking. It also helps secure a stable future for new generations and supports the nation's advancement. This modern technology has imposed itself on our reality, whether we accept it or not.

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