

RESEARCH ARTICLE

WWW.PEGEGOG.NET

E-learning technologies and their role in the teaching and learning process

Dr. Tahir Belgaid ¹, Dr. Samia Ghechir ², Dr. Saida Baguigui ³

¹ Ahmed Ben Bella University of Oran 1 (Algeria).Email: belgaid.tahir2205@gmail.com

² Hassiba Ben Bouali University of Chlef (Algeria). Email: samiaghechir@gmail.com

³ University of Hadj Lakhdar Batna 2 (Algeria).Email: s.baguigui@univ-batna2.dz

Received: 10.12.2024, Accepted: 23.01.2025, Published: 08.03.2025

Abstract:

This article discusses the importance of e-learning technologies in the teaching and learning process and their crucial role in overcoming difficulties and providing the most effective alternative to face-to-face education. It touches on the most prominent of these technologies, their functions, and how they can be applied to make lessons successful.

Through this article, we aim to encourage researchers and professors to use e-learning technologies, especially with the prevalence of crises and pandemics, in addition to the spread of digital education, as working with a distance learning platform has become a very important requirement.

Keywords: teaching techniques, technological education, distance learning platform, teaching and learning process.

1. Introduction:

No type of education (classical, contemporary, distance learning, etc.) is without its own distinctive technologies, which are the means by which teachers deliver their lessons in order to achieve the targeted competencies and educational objectives. It is clear that the techniques used in contemporary education are based on new educational theories that differ from the ideas and concepts of traditional education.

E-learning has become the most effective form of education today, given the very significant positive results it has achieved, especially during the coronavirus crisis. I had experience with the distance learning platform at the University of Chlef during the coronavirus crisis.

How did I use these techniques in preparing my lesson and putting it on the distance learning platform?

2. Definition of educational technologies:

Education has become heavily dependent on educational technologies, which facilitate the learning process and help convey knowledge and information more quickly and easily, making learners more receptive to the educational material.

It refers to “all the tools and means through which the teacher can clarify ambiguous terms and concepts that students encounter during the educational process, thereby forming mental images of them in their minds, which helps to ensure the success of the teaching and learning process.”¹

Among the teaching techniques, we find direct instruction, which is adopted by the educational process in all its stages, and indirect instruction, which relies on electronic media. In both cases, "teaching techniques are a fundamental pillar of the educational process. They are an integral part of the comprehensive educational system, prompting educational institutions to adopt them to achieve their goals in light of the challenges facing the world as a result of the rapid changes brought about by the information and communications revolution.”²

Educational technologies are a new concept in the educational process, “less than half a century old, and the emergence and development of this concept is attributed to the programmed learning movement that emerged in the 1960s.”³

3. E-learning technologies and their role in the educational process:

E-learning relies on numerous technologies that keep pace with technological developments, such as advanced programs like Opale and Power, in addition to video programs, audio recordings, and CDs.

The Opale program relies on a method of designing lessons according to advanced programs; the lesson includes in its methodological structure (entry system, learning system, exit system), and the basic elements represented in: prior knowledge, targeted competencies, and general objectives.

The Power program relies on presentations, where the teacher presents lessons using slides, relying on colors, backgrounds, and fonts. Today, it has become widely used in educational programs. In schools in developed countries, it motivates and encourages students and helps achieve faster responses and fruitful interaction between the two parties in the educational process (teacher/learner). One of the advantages of presentations is that they bring vitality and joy to the educational space. They also stimulate learners through images, colors, and fonts, and help to "present innovative and attractive presentations with sound and images that motivate students to learn. Images also help

¹ Ali Fawzi Abdel Maqsood - Attia Salem Al-Haddad, Educational Media and Educational Technology "Educational Communication - Communication Models", University Youth Foundation, Alexandria, Egypt, (n.d.), 2014, p. 18.

² Moussa, Hussein Hassan, The Use of Multimedia in Scientific Research, Dar Al-Kitab Al-Hadith, Cairo, Egypt, (n.d.), 2008, p. 13.

³ Rahman Abdul Hafiz Muhammad Salama, Saad Abdul, Introduction to Educational Technology, Dar Al-Khuraji for Publishing and Distribution, Saudi Arabia, (n.d.), 2002, p. 15.

clarify many things and add a sense of vitality and excitement to the educational material. The use of appropriate sound effects accompanying the slides creates an exciting atmosphere that encourages students to participate actively."¹

Video is one of the most important educational resources that teachers rely on in their teaching careers to improve their lessons and provide them with new mechanisms. The teacher explains his lesson using visual slides, which makes it easier for students to retain the information than if it were written or spoken, in addition to understanding its content, objectives, and competencies. Among the advantages of video are: "Presenting stimuli that are varied in nature (sound, image, music, colors, etc.). .)

- Flexibility of teaching by choosing the place and time of presentation.
- Taking into account individual differences among students, through the possibility of each student learning at their own pace and according to their abilities.
- The ability to store a large number of diverse educational resources (slides, transparencies, maps, drawings) on a single video cassette, which reduces the need for multiple devices when they are not available."²

Pedagogical videos are among the most important educational resources that teachers rely on in their teaching careers to improve their lessons and provide them with new mechanisms, as well as facilitate the teaching process. Teachers' explanations of lessons via video make it easier for students and researchers to understand and absorb their content, objectives, and competencies. Video is a very important element, especially for groups with disabilities (motor, visual, etc.).

The pedagogical video presented to students usually includes:

- An introduction to the course
- Prior knowledge
- Target competencies
- Learning objectives.
- Assessment criteria.

E-learning requires the use of this technology much more than just giving lectures, as audio and video explanations are extremely important in clarifying information, conveying ideas, and encouraging students to adopt this advanced technology.

¹ Fawzi Fayezi Ishtiwa, Educational Technology (Theory and Practice), Dar Safaa for Publishing and Distribution, Amman, Jordan, 1st Edition, 271, Vol. 1, p. 271.

² Fawzi Fayezi Ishtiwa, Educational Technology, p. 222

The Internet (the World Wide Web) also plays a major role in providing students with various experiences and skills by offering solutions to cognitive problems, especially in light of the interruption of direct education between students and teachers. Teachers may use "explanations and images using technological media such as projectors, audio-visual activities... All of these work as stimulants for thought, and as catalysts for acquiring and developing practical skills and intellectual abilities such as planning, design, and decision-making... Problem solving and the advanced mental skills it involves are at the heart of the technological process in its broadest sense."¹

Other advantages of the Internet include: upgrading researchers' skills, contributing to improving their response to the information and knowledge provided to them, the speed of knowledge flow and its lack of limitation in time and space, enabling access to various knowledge and information in the fastest time and with the least effort and cost, and connecting to various global websites and platforms, electronic libraries, and various forums, and human communication with people and researchers from different countries around the world. The Internet has made it easier for people to complete and follow up on their research and studies without having to physically go to classrooms, especially for groups with various disabilities, as well as people associated with certain professions.

Among the technologies of e-learning are: computers, which contribute to improving teaching methods and achieving high performance, raising the level of education and learners. They also help to present educational materials in an enjoyable way that appeals to learners, offering educational programs, innovative designs, and more modern templates. Computers have benefited from various modern educational technologies. "A computer is an electronic machine capable of performing various operations at high speed. It stores and analyzes data and information through a language that the computer interacts with."² Among the most important advantages of computers are:

- The superior ability to store various information, knowledge, and experiences.
- The ability to develop various educational programs in line with the spirit of the times.
- Economy in effort and money.
- Updating educational programs, enriching cognitive abilities, and developing the intellectual and creative energies of learners.

For the educational process to be successful, basic programs that help to accomplish activities in an effective manner must be downloaded, including:

- Vue
- Libre Office
- Winrar
- Adobe Flash Player

¹ William Obeid, Education and Learning in the Context of Quality Culture, Dar Al-Masira for Publishing, Distribution and Printing, Amman, Jordan, 1st Edition, 2009, Vol. 1, p. 233.

² Abdul Aziz Muhammad Al-Aqili, Educational and Communication Technologies, Al-Taqiya Offset Printing Press, Riyadh, Saudi Arabia, 2nd edition, 1996, p. 199.

- Important supporting materials (paper, web, Scorm, etc.)
- Providing feedback to improve the level of the lesson and correct mistakes.
- Being able to prepare mind maps using the Vue program and the advanced Opale program
- Organize and design lessons according to a clear and precise methodology (entry system, learning system, exit system), and establish the basic elements represented by: prior knowledge, targeted competencies, and general objectives.
- Gradual progression in question difficulty (from easy to difficult) and variety in questions (single and multiple choice).

E-learning has created an atmosphere of vitality and activity, transforming the educational environment from its traditional, static state to an interactive one, which has resulted in an increase in its users due to the advantages it offers. It "keeps learners active and positive at all times, develops their research, inquiry, and learning skills, as well as their communication and social skills, and their thinking skills through gathering, classifying, and critiquing information, and selecting and applying knowledge. It also helps educational administrations overcome teacher shortages and the problem of private lessons, and develops the academic skills of teachers."¹

4. Model: Posting the lesson on the platform: “Mise en ligne du cours”

Online teaching scenario:

Distance learning has become a very important necessity, overcoming the difficulty of physical communication between the teacher and their students. The teacher presents lessons and activities in SCORM, PDF, and ODT formats via the platform of the university to which they belong, and the student views them and downloads them for their benefit. Teachers usually ask students to prepare distance learning activities and lessons, especially during the coronavirus crisis, and students prepare them individually or in groups.

5. Steps for posting a lesson on the university platform:

Create an account on the university platform using your name and password.

Enter the lesson title and an image that represents it, as follows:

Provide information about the lesson:

Follow the steps outlined in the attached guide to post the lesson on the platform in accordance with educational regulations, accompanied by activities and supporting resources such as Word and PDF files, in addition to the lesson prepared in the Opal program but in a simplified Scorm format, and include self-assessment activities, single-choice exercises, and multiple-choice exercises.

¹ Salem Nassira, Electronic Education Systems and Platforms, Notebooks of the Laboratory of Educational Issues in Light of Current Challenges, Refereed Scientific Journal, University of Mohamed Khider - Biskra - Vol. 12, No. 1, 2017, p. 87.

- ☐ Include information about the professor, the university to which he or she belongs, the title of the lesson he or she has prepared, the class for which the lesson is intended, as well as the coefficient and number of hours allocated to it, and the objectives of the lesson.
- ☐ Highlight prior learning, which identifies the information that students have retained from lessons they have taken in previous years.

Develop lesson content.

- ☐ Divide the lesson into specific topics by adding an image and a short introduction to give an overview of the topic.
- ☐ Then clarify the general objectives of the topic.
- ☐ I created a concept map defining the content of the topic, in addition to other educational resources and activities such as a Scorm file, a website containing an article about the first chapter of this lesson, an exercise, and other educational resources and activities shown in the image:
- ☐ Then I included a set of data represented by: opinion poll, glossary of terms, help resources, chat room, workshop, wiki, and exercises.
- ☐ Finally, I prepared a comprehensive test for the lesson.
- ☐ I displayed a list of basic references related to the educational unit.

4- E-learning objectives:

6. The objectives of e-learning are as follows:

- Develop the educational skills of teachers and students, enable them to control advanced educational media and tools, and open up technology outlets for them.
- Enabling students to access lessons and programs via educational platforms without leaving their homes or coming into contact with others, thereby preserving their health and safety.
- Developing the level of education by transforming it from its traditional stereotypical image to a more advanced and sophisticated one.
- This educational model can accommodate the largest number of researchers, regardless of their gender, age, position, or academic level.
- Encouraging the principle of self-learning that utilizes technological media to expand human knowledge, which is continuous and unlimited education through which the learner aims to achieve desired educational goals.

7. The assumed plan for e-learning:

- Self-learning by the student, which is a logical result of the motivation to learn and sufficient self-reliance.

- The necessary follow-up to keep up with the lessons.
- Efficiency in relying on websites to seek knowledge, which cannot be achieved without knowledge of the mechanisms of the medium used.
- Interaction between the teacher and the learner through lesson evaluation and then enriching the discussion through questions and answers.

8. The assumed results of e-learning:

- The student's reliance on himself in acquiring knowledge and his genuine feeling of the need to acquire some of it.
- Scientific communication between learners in the context of the same scientific rank, exchanging knowledge, and creating genuine knowledge communication.
- Enhancing knowledge through the exchange of different cognitive perspectives, supported by constant and direct communication.
- Easy communication with the teacher at all times to receive knowledge and ask various scientific questions.
- Multiple teaching methods that vary according to the teacher, including visual/audio, and audio and written, as an alternative to direct attendance.
- Access to information at any time without being restricted to a specific time that the student must attend in person, if the information is written, visual, or audio-recorded.
- Ease and variety of methods for assessing learners.
- Utilization of time, speed of access to information, and the ability to quickly benefit from it.
- Saving time for teachers by utilizing it to acquire knowledge and develop competencies.

The idea of e-learning emerged as a logical result of the technological developments that have shortened the distance between teachers and learners. However, the idea itself was preceded by the promotion of this type of education, which resulted in the emergence of a separate line of work manifested through distance learning platforms. Registration on these platforms can be done in various ways, including as a teacher or learner, and there are many ways to log in, including as a guest. This method became more prominent with the coronavirus crisis, which imposed the need for distance learning as a necessary alternative to mitigate the potential consequences of the suspension of education across various sectors. Distance learning was an alternative to face-to-face education in an attempt to compensate and keep up, but this method may face significant challenges that may not yield guaranteed scientific and practical results, because the basis of science is based on actual and real confrontation, which requires the teacher and learner to meet on the same scientific level. where the teacher understands that they are the one presenting the lesson and the learner understands that they are the one intended to receive the lesson at a specific time and place, through a specific communication channel.

9. Difficulties and obstacles to e-learning and distance learning:

The implementation of e-learning and distance learning in our Arab world faces many obstacles and difficulties due to the difficulty of adopting modern technologies. Arab education is still very behind in the use of modern technological techniques, and there is a lack of modern educational tools that enhance university education, in addition to other factors such as:

- Weak infrastructure, such as a lack of appropriate devices and equipment, and a lack of educational technologies, coupled with a shortage of training courses for teachers to learn about these technologies and how to use them.
- Weak technological environment and human resources that deal with electronic forms of information sources and mastery of modern and innovative means of dealing with them.
- Language barriers and obstacles, as most electronic sources are in English and other foreign languages, which many Arab teachers find difficult to use as required. "¹

Multimedia-based education requires teachers to change their approach to learning and assessment, moving away from the idea of learning through reception and indoctrination to the idea of education through active participation by the learner. This change in approach to learning and assessment is not easy, due to a lack of awareness.

The difficulty of implementing electronic tests due to the possibility of cheating.

The novelty of the Internet and its spread in Arab countries, and the limited spread and use of computers.” ²

There is also the psychological aspect, such as the scientific rejection of electronic sources of information by some teachers. There is also potential resistance to e-learning by some teachers, counselors, and others, which gives it a negative image, in addition to learners' unwillingness to embrace this new form of learning and their lack of familiarity with it. Learners are “attracted to the educational situation and undertake learning driven by an internal desire or psychological need to satisfy themselves, or in pursuit of the pleasure of learning, acquiring the knowledge and skills they are inclined towards, or in pursuit of success and excellence to satisfy their need for achievement.”³

- Lack of genuine desire to seek knowledge and commitment to the academic aspect, in which learners progress through different stages, and the fact that many teachers and learners associate education solely with obtaining a certificate rather than with research and knowledge building.

¹ Ahmed Jumaa Ahmed: Walid Elsayed Khalifa, Murad Ali Issa, Computer-Aided Learning in a Changing World, Dar Al Wafa for Printing and Publishing, Alexandria, 1st Edition, 2006, p. 90.

² Ahmed Jumaa Ahmed: Walid Elsayed Khalifa, Murad Ali Issa, Computer-Aided Learning in a Changing World, p. 90.

³ Afaf Mustafa Al-Tanawi: Effective Teaching: Its Planning, Skills, Strategies, and Evaluation, Dar Al-Masira, Jordan, 1st Edition, 2009, p. 147.

- There are difficulties related to the teaching method itself, in that it is not sufficiently popular with learners.
- There is no specific channel of communication where the teacher meets the learner directly. The learner reads the teacher's writing rather than seeing them in person, which has negative effects on comprehension and learning, as well as on achieving the desired educational results and goals.
- The inefficiency of this method of learning, the lack of recognition of it, and the difference between it and direct attendance, which is the difference between accredited certificates in distance learning methods and those obtained through correspondence courses, which often produce a category of learners who attribute themselves to knowledge in terms of certification rather than knowledge.
- The lack of power of the Internet as a medium; its reliance as a real substitute for direct attendance brings teachers and learners - despite their large numbers - together at the same time and in different places in a single line, which is not possible even in the most advanced countries such as the United States and Japan, let alone the Arab countries. This is because weak internet connectivity is the norm in these countries, not to mention that there are places where the internet is not available. Students often use this as an excuse, and it is a valid one, as opportunities are not equal even when this method is used.
- The gap between the theory behind this process and the reality on the ground, given that the coronavirus crisis was a compelling reason for resorting to this method, but it did not prove to be as successful and efficient as hoped. Therefore, a tangible return to in-person education rather than virtual education was an urgent necessity in order to complete the academic year as usual.
- The lack of space for conducting classes and lectures at universities, or for students and professors.
- The failure of government systems to give the necessary importance to distance learning, as evidenced by the absence of observatories to measure the extent of citizens' acceptance of distance learning.
- The difficult economic conditions in most Arab countries, in addition to low income levels and poverty among citizens, make things difficult for them, especially given their inability to afford the internet, computers, and smartphones.

10. Conclusion:

Distance learning plays a prominent role in achieving communication and intellectual and scientific convergence between teachers and students. Its importance lies in the fact that it is the ideal and most effective alternative for raising the level of education, researchers, and students by relying on modern educational technologies, methods, and means that keep pace with technological developments in Western countries.

The application of alternative education in the form of distance learning is very difficult in our Arab world due to the obstacles and difficulties that stand in the way of its success and implementation. The coronavirus pandemic has revealed the shortcomings of this educational model, which are due to technical, subjective, and technological reasons. Most countries suffer from poor internet

connectivity, which makes it difficult to access platforms and websites and open educational videos posted on platforms and YouTube. It also hinders communication and discussion between teachers and students.

In addition to other factors related to lack of motivation, students' unwillingness to accept e-learning, and a technological environment that does not encourage the application of this educational model, which has not yet established itself in our educational system, and the low economic income of Arab individuals.

*** Recommendations:**

E-learning is extremely important; it is an alternative and interactive form of education that gains its importance through the active roles that enhance education. It has become urgently needed, especially in light of the global health situation, which has affected the education system.

Those in charge of the educational system in our Arab world must activate this type of education and develop new technological techniques to facilitate serious scientific communication between teachers and students and open other channels of knowledge that facilitate the acquisition of information in an easier and faster way in order to improve the quality of education and develop scientific research.

References:

- 1- Ahmed Gomaa Ahmed: Walid Al-Sayed Khalifa, Murad Ali Issa, Computer-Assisted Learning in a Changing World, Dar Al-Wafa Publishing House, Alexandria, 1st edition, 2006.
- 2- Al-Aqqad: Thinking is an Islamic Duty, Nahda Misr, Egypt, 6th edition, 2007.
- 3- Hussein Hassan Musa: Using Multimedia in Scientific Research, Dar Al-Kitab Al-Hadith, Cairo, (1st edition), 2008.
- 4- Salim Nasira, E-Learning Systems and Platforms, Notebooks of the Educational Research Laboratory in Light of Current Challenges, Peer-Reviewed Scientific Journal, Muhammad Khaydar University – Biskra –, Vol. 12, No. 1, 2017.
- 5- Abdul Hafiz Muhammad Salama-Saad Abdul Rahman: Introduction to Educational Technologies, Dar Al-Khuraji Publishing and Distribution, Saudi Arabia, 2002.
- 5- Fawzi Fayez Ashtaw: Educational Technology (Theory and Practice), Dar Safaa Publishing and Distribution, Amman, Jordan, 1st edition, 2010.
- 6- Youssef Sayed Mahmoud: New Visions for the Development of University Education, Dar Al-Masriya Al-Lubnaniya, Cairo, Egypt, 1st edition, 2009.
- 7- William Obeid: Education and Learning in the Context of Quality Culture, Dar Al-Masira Publishing, Distribution and Printing, Amman, Jordan, 1st edition, 2009.