ITJ | The International Tax Journal

Digital technologies and the enhancement of education

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Abstract---This scholarly contribution is situated within the priority of highlighting the importance of a highly significant area of inquiry in the field of education and its relationship to educational digitalisation: the impact of employing modern, or digital, technologies on the development of teaching and learning practices among learners. The study, therefore, focuses on contemporary technologies in terms of their significance, given that they possess a range of characteristics and advantages that enable the achievement of the intended objectives of the teaching–learning process, which educational systems worldwide aspire to realise in terms of quality and modernity. Such technologies can also foster the development of learners' scientific, cognitive, and experiential skills and competencies. The discussion further outlines the principal foundations and criteria that teachers should consider. The time has come to modernise educational institutions, given the considerable importance of these technologies. Moreover, today's generation must keep pace with ongoing developments across diverse scientific fields; accordingly, from this perspective, an illiterate person lacks proficiency in using such tools and technologies, including the internet and computers. In the view of many, the failure to integrate modern technologies into the teaching–learning process constitutes one of the most pressing problems facing contemporary Algerian schooling, owing to their importance and capacity to support the attainment of educational and learning goals.

Keywords---technologies, digitalization, education.

How to Cite:
MERIGUI, S., NEBEG, Z., NEBEG, A., & HADJADJ, A. (2026). Digital technologies and the enhancement of education. *The International Tax Journal*, *53*(1), 139–149. Retrieved from https://internationaltaxjournal.online/index.php/itj/article/view/507

The International tax journal ISSN: 0097-7314 E-ISSN: 3066-2370 © 2026

Submitted: 21 January 2025 | Revised: 20 March 2025 | Accepted: 23 November 2025

1. The Term "Technology" (Its History and Origin):

Many members of the general public believe that technological terms are the product of modern human needs; this is a widespread misconception. In contrast, their usage is ancient, leaving no room for doubt about their classification as among the earliest terms in terms of designation (the lexical form) itself, even though their contemporary use is relatively recent. Some sources indicate that the term "technology" (*Technologie*) first appeared in Germany in 1770. The term is composed of two elements: *techno*, which in Greek denotes "art" or "craftsmanship," and *logie*, which signifies "science" or "theory." The combination of these two elements yields the meaning "the science of producing systematic knowledge in the arts of industry or applied science." The term has no exact equivalent in Arabic and has therefore been Arabised through literal transcription as "technology" (*Technologie*).[1]

Definition of the Term "Technology" (Terminologically):

Yaʿqūb Fahd al-ʿUbayd defines it as "a set of available, accumulated, and inferred knowledge, experiences, and skills concerned with machines, tools, methods, means, and systems associated with production and services, directed towards serving specific purposes for human beings and society."

The researcher ʿAbd al-Munʿim Yūsuf defines it as "the framework that encompasses computer sciences, information systems, communication networks, and their applications across various domains of organised human activity. "[2]

Meanwhile, Muṣṭafā ʿAbd al-Samīʿ defines it as "a comprehensive and integrated system that expresses the process of teaching and learning in all its aspects and dimensions, as well as the interactions occurring between its human and nonhuman components. "[3]

ʿĀdil Sulṭān defines educational technology as "a composite of the technologies of instruction, learning, development, and management, to which recourse is made when solving problems related to the educational process. It is manifested in everything that educational specialists employ, in terms of art and science, in managing education, designing facilities, organising work within them, developing personnel and schools, equipping them with appropriate devices and machines, or facilitating individuals' learning processes successfully and without any obstacles. "[4]

In its broadest sense, it is an aspect of culture that encompasses knowledge and tools through which human beings influence the external world and exert control over matter to achieve desired scientific outcomes.[5]

Accordingly, a rapid reading of the foregoing definitions shows that they almost unanimously agree that the concept of modern technology is a science that produces knowledge and organises it and that it can be utilised across various domains of life for specific purposes, as is the case in the sphere of education and teaching and in addressing all the problems encountered by those working in education.

1. Education:

The educational process is generally defined as a set of organised and intentional interactions between the teacher and the learner within a specific educational environment to transmit knowledge and develop skills, values, and attitudes and to rely on planned pedagogical means and methods. It is a dynamic process in which multiple elements are integrated, including objectives, content, teaching methods, and assessment tools, in a manner that achieves the learner's comprehensive development cognitively, affectively, and behaviourally.

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[1] Faḍīl Dalīw, *Al-Tiknūlūjiyā al-Jadīda li-al-Iʿlām wa-al-Ittiṣāl: al-Mafhūm–al-Istiʿmālāt–al-Āfāq* (ʿAmmān, Jordan: Dār al-Thaqāfa, 2010), 20.

[2] ʿAbd al-Munʿim Yūsuf Bilāl et al., *Al-Ittiṣālāt wa-al-Maʿlūmātiyya fi Miṣr: al-Wāqiʿ wa-al-Mustaqbal Ḥattā ʿĀm 2020* (al-Qāhirah, Egypt: al-Maktaba al-Akādīmiyya, 2003), 56.

[3] See Aḥmad ʿIṣām al-Ṣafadī and Maḥmūd Riḍā al-Baghdādī, *Tiknūlūjiyā al-Taʿlīm wa-al-Iʿlām* (Kuwait: Maktabat al-Fallāḥ li-al-Nashr wa-al-Tawzīʿ, 1989), 82.

[4] ʿĀdil Sulṭān, *Tiknūlūjiyā al-Taʿlīm wa-al-Tadrīb* (Kuwait: Maktabat al-Fallāḥ, 2005), 39.

[5] See Maḥmūd ʿIlm al-Dīn, *Tiknūlūjiyāt al-Maʿlūmāt wa-Ṣināʿat al-Ittiṣāl al-Jamāhīrī* (al-Qāhirah, Egypt: Dār al-ʿArabī, 1990), 17.

The *Educational Dictionary* also defines the educational process as "the organised activity that aims to bring about a desired change in the learner's behaviour, as a result of an intentional interaction between the teacher and the learner in a specific educational situation."[6]
It is also regarded as "the integrated system of pedagogical relations and interactions that aims to construct learning and develop the learner's capacities within a specific social and cultural context."[7]
Ḥasan Shaḥāta further states that education is "a structured human social process that aims to transmit the cultural heritage, develop the learner's personality, and prepare him for integration into society."[8]

2. Digitalisation:

Linguistically:
In Arabic lexical dictionaries, the term *raqam* (number/inscription) denotes a range of meanings, foremost among them diacritisation, clarification, writing, pen, script, and line. Ibn Manẓūr states, "*al-raqam* and *al-tarqim* are the diacritisation of writing; *raqama* the writing, he *raqama* it—*raqman*—that is, he diacritised it and clarified it." A "*kitāb marqum*" is a text whose letters have been clarified by their marks of pointing, and in His Exalted is He saying "*kitāb marqum*," it is a "written book." *Al-marqam* is the pen; *al-raqam* is writing and sealing.

Terminologically:
It is defined as "the process of representing objects, images, files, or analogue signals using a discrete set consisting of separate points."
Digitalisation is the process of converting information sources, in their various forms (books, periodicals, audio recordings, images, and moving images), into a form readable by automated computational technologies through a binary system (bits). A bit is the basic unit of information in a computer-based information system, and information is represented as a set of binary numbers. This process is carried out by relying on a set of specialised techniques and devices,[9] particularly in the educational field.
Doug Hodges presents a concept adopted from the National Library of Canada, according to which digitalisation is a process or procedure for converting intellectual content available on a traditional physical storage medium, such as articles, periodicals, books, manuscripts, and maps, into a digital form. Some specialists have defined it as paperless administration, a means of enhancing the performance and efficiency of the educational and pedagogical authority, relying principally on advanced modern technologies.
Digitalisation has also been defined not only as the acquisition and management of collections of electronic content but also as fundamentally concerned with converting an information source available in simple paper form to facilitate its transfer through electronic programmes. Converting traditional text from paper form to digital form enables it to be accessed through computer technologies.

4. The Current State of the Use of Modern Technologies:
It is neither easy nor straightforward to apply the scientific concepts of modern technologies, given the particularities that characterise Arab societies in general and Algeria in particular, compared with Western societies, where technology and digitalisation have become a societal culture. Nevertheless, it is imperative to use modern educational techniques to achieve scientifically planned objectives. Researcher Nadia Mohammed stated, "The employment of information technology that is, benefiting from it in the sound selection of modern techniques that assist school administration [educational institutions] in moving towards new objectives and advancing them is the cornerstone of planned thinking based on

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[6] *Al-Muʿjam al-Tarbawī* (al-Qāhirah, Egypt: al-Markaz al-Qawmī li-al-Buḥūth al-Tarbawiyya, 2001), 23.
[7] Muḥammad al-Drīj, *Al-Tadris al-Hādif* (al-Ribāṭ, Morocco: 2000 ,منشورات عالم التربية), 22.
[8] Ḥasan Shaḥāta, *Al-Taʿlim wa-Mujtamaʿ al-Maʿrifa* (al-Qāhirah, Egypt: Dār al-ʿArabiyya li-al-Kitāb, 2003), 15.
[9] ʿAbd al-Raḥmān ʿAzzī, *Al-Ittiṣal al-Raqami wa-al-Mujtamaʿ: Muqarabāt Naẓariyya wa-Manhajiyya* (al-Qāhirah, Egypt: Dār al-Fajr li-al-Nashr wa-al-Tawzīʿ, 2015), 37.

administrative knowledge and on influential leadership that continues to strive to engage with the outputs of information and communication technology and to invest them within the school system."[10]
In this context, we face an unavoidable problem that may be posed as follows: Can we, in fact, use modern technologies within Algerian educational institutions?
Naturally, answering this question requires patience and objectivity. These two researchers, Saʿādāt Jūda Aḥmad and al-Sarṭāwī ʿādil Fāyiz, mention a set of obstacles we face in using the internet, by way of example rather than limitation, given that it is an important tool and the most widespread in our time. Among the most significant are the following:[11]

A. Technical problems:
These constitute the first obstacle faced by both the teacher and the learner. Some do not know how to address everything related to this modern technology, in addition to the difficulty of keeping pace with the rapid and vast development of computer technologies and communication networks. In addition, the weakness of the communication infrastructure in some countries (especially Arab countries) negatively affects the use of this technology for communication, interaction, learning, and teaching.
B. Language:
Most scientific databases on the internet are in English, which constitutes an obstacle for learners and teachers. Hence, it is necessary to build Arabic databases so that we can benefit from them and use them with ease.
Education:[12]
C. The Nature of Educational Systems:
There are teaching approaches that are bound to frameworks and systems that must be adhered to, whether by teachers or by educational authorities.
D. Absence of Links between Curricula and Modern Information Technology:
Given these obstacles, it has become necessary to overcome them and work towards entering the world of modern technologies and investing in them in the field of teaching and learning. If we seek to prepare distinguished researchers who are proficient in the use of technology, all that is required is to encourage them to use high-quality technology to equip them with the specific skills they need, enabling them to interact with it so that they may exploit, invest in, and employ it. Widely available commercial application programs, such as word processing, spreadsheets, internet browsers, and presentation software, play important roles in education and learning. These can be installed on computers and information networks. "[13]
Accordingly, the use of modern technologies in advancing the education sector should be harnessed to facilitate the teaching–learning process for both teachers and learners. Keeping pace with scientific development has become necessary, given the benefits these modern technologies offer and their importance in revitalising and activating the education sector towards progress and advancement.

1. The Importance of Modern Technologies in the Teaching–Learning Process:
In this section, the importance of modern technologies in educational life is highlighted, drawing on a range of researchers and scholars who have emphasised the role that modern technologies can play in revitalising education through contemporary means that enable teachers and learners to keep pace with developments in Western societies.
Modern digital technologies are regarded as highly significant tools in the teaching–learning process (education). The researcher Zaytūn Ḥasan Ḥusayn identifies a set of advantages that characterise

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[10] Saʿādāt Jūda Aḥmad and ʿĀdil Fāyiz al-Sarṭāwī, *Istikhdām al-Ḥāsūb wa-al-Internet fi Mayādīn al-Tarbiyya wa-al-Taʿlīm* (ʿAmmān, Jordan: Dār al-Shurūq, 2003), 239–47.
[11] al-Fār Ibrāhīm ʿAbd al-Wakīl, *Tarbawiyyāt al-Ḥāsūb wa-Taḥaddiyāt Maṭlaʿ al-Qarn al-Ḥādī wa-al-ʿIshrīn* (al-Qāhirah, Egypt: Dār al-Fikr al-ʿArabī, 1421 AH), 34.
[12] Yaʿqūb Fahd al-ʿUbayd, *Al-Tanmiyya al-Tiknūlūjiyya: Maſhūmuhā wa-Mutaṭallabātuhā* (al-Qāhirah, Egypt: al-Dār al-Duwaliyya li-al-Nashr wa-al-Tawzīʿ, 1999), 20.
[13] Ḥusām al-Dīn Muḥammad Māzin, *Tiknūlūjiyā al-Tarbiyya: Madkhal ilā al-Tiknūlūjiyā al-Maʿlūmātiyya* (Sohag, Egypt: Dār al-ʿIlm wa-al-Īmān, 2014), 48.

modern technologies, considering them a necessary means in education, particularly for learners' self-directed learning. These advantages may be summarised as follows:[14]

- The student learns according to his or her own abilities and circumstances, especially given the possibility of preparing and designing educational materials at different levels.
- It constitutes a genuine application of the concept of self-directed learning.
- Leading specialists prepare educational materials in line with the latest teaching and learning methods.
- The learning process is not bound to a specific time or place; learning can take place at any time and throughout the year.
- The cost of teaching and learning via the global web (the internet) is lower than that of traditional methods.
- The possibility of developing or modifying (updating) academic material with ease and flexibility.
- The possibility of learning outside the university campus (educational institutions), whether in workplaces, homes, or even public spaces.

Both researchers, Jūda Aḥmad Saʿāda and al-Sayyid ʿādil al-Sarṭāwī, have also emphasised in their book *The Use of Computers and the internet in the Fields of Education and Teaching* the necessity of using the Worldwide Web as an important tool among modern technologies in education, given its distinctive features. It serves to:[15]

- Develop learners' (students') educational skills beyond the content of the specialised subject matter in the curriculum by equipping them with leadership, team-building, positive communication, critical thinking, and problem-solving skills.
- Liberate learning from the constraints of time and place, thereby encouraging communication with others and benefiting from their knowledge.
- Provide rich and meaningful opportunities, as students control the extent of their academic and scientific progress when they feel a sense of mastery and control over their learning.

It is believed that the objectives of any teaching–learning process cannot be achieved unless there is positive educational effectiveness. Modern technologies constitute an essential means of providing such effectiveness and fulfilling this role, provided that several factors are present, which may be outlined as follows:[16]

A. Increasing the effectiveness of education

Numerous studies have confirmed that modern technologies based on computers and information networks can contribute to the effectiveness and quality of educational outputs. This effectiveness is manifested in the educational process in several ways.

B. Achieving equity and equality in access to information:

The availability of modern technologies in educational institutions provides services that meet citizens' needs, particularly regarding the right to high-quality and effective educational services and resources, regardless of poverty status or distance from urban centres that enjoy them.

C. Low cost:

The cost of using modern technologies is considered modest, particularly in educational budgets. For example, the cost of computers today is lower than it was in the past. This relatively low cost has prompted governments, organisations, and bodies responsible for education at various levels and stages

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[14] Zaytūn Ḥasan Ḥusayn, *Ruʾya Jadīda: al-Taʿlim wa-al-Taʿallum al-Iliktrūnī—al-Mafhūm—al-Qaḍāyā—al-Taṭbīq—al-Taqyīm* (al-Riyāḍ, Saudi Arabia: al-Dār al-Ṣawtiyya li-al-Tarbiyya, 2005), 226–27.

[15] Jūda Aḥmad Saʿāda and al-Sayyid ʿĀdil al-Sarṭāwī, *Istikhdām al-Ḥāsūb wa-al-Internet fi Mayādin al-Tarbiyya wa-al-Taʿlim* (Rām Allāh: Dār al-Shurūq, 2003), 135–36.

[16] Ḥusām al-Dīn Muḥammad Māzin, *Tiknūlūjiyā al-Tarbiyya: Madkhal ilā al-Tiknūlūjiyā al-Maʿlūmātiyya* (Sohag, Egypt: Dār al-ʿIlm wa-al-Īmān, 2014), 47–48.

to strive to introduce technology into their institutions and benefit from it. This has led developed countries to accelerate the integration of modern technologies into educational institutions.

D. Confronting challenges:

Among the significant challenges that must be addressed to achieve the optimal and effective use of modern technologies in education are the following:

- Faculty members should be developed and trained to identify the educational opportunities offered by modern technology to increase the effectiveness and efficiency of student learning.
- Ensuring the development and provision of high-quality learning content software.

In this context, the researcher Yūsuf Maḥmūd Baraka al-Juhanī discussed the role played by modern technology in the success of educational institutions and in achieving their objectives as follows:[17]

- Education should be improved through the use of microteaching, video recordings, and simulations to enhance learners' practical performance.
- By changing the roles of both the teacher and learner through the application of the systems approach to educational technologies, the learner has become a participating element in the teaching–learning process; that is, there is a process of participation and interaction between the teacher and learner, which is known as teaching.
- Modern technology has provided alternatives, methods, and approaches for advancing the education sector, such as programmed instruction and educational computing; consequently, learners can learn without a teacher and receive what is termed feedback.
- Modern technologies have offered vast possibilities for developing curricula, programs, and textbooks, as well as teaching methods.
- They provide the teacher with a valuable service that enables him to keep pace with developments in modern educational practice, which places the learner at the centre of attention and makes the learner the focal point of the teaching–learning process, seeking to develop him across different dimensions (physiological, cognitive, linguistic, emotional, moral, and social).

Both researchers al-Ṣafadī Aḥmad ʿIṣām and Maḥmūd Riḍā al-Baghdādī hold that modern technology aims to do the following:

- Helping create and foster a psychological and educational climate in classrooms and laboratories, breaking inertia and traditional routines and increasing the enthusiasm of shy and hesitant students by providing opportunities for effective classroom interaction.
- Assist in developing the teacher's capacity to present and deliver academic material to students in a manner that contributes to processes of understanding and perception.
- The teacher and the learner, in most cases, are able to identify the results of their work directly through feedback.
- Clarifying concepts and abstract terms through sensory means forms a visual image in learners' minds.
- This contributes to strengthening the relationship between teachers and learners and among learners themselves when they are used effectively and competently.
- Help simplify and clarify information and ideas and assist students in performing their skills effectively and with motivation.[18]
- Help educational technology stimulate students' interest and satisfy their learning needs.
- By enhancing the student's experience, he or she is better prepared to learn.
- Help engage more of the students' senses in the teaching–learning process.

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[17] Yūsuf Maḥmūd Baraka al-Juhanī, "Wāqiʿ Istikhdām Muʿallimī al-Marḥala al-Thānawiyya li-Tiknūlūjiyā al-Maʿlūmāt wa-al-Ittiṣālāt wa-Ittijāhātuhum Naḥwahā" (master's thesis, 2007), 13–14.

[18] al-Ṣafadī and al-Baghdādī, *Tiknūlujiyā al-Taʿlīm wa-al-Iʿlām*, 82.

- Present educational material to students in ways suited to their abilities and readiness, take individual differences into account, and support the principles of self-directed learning and the individualisation of instruction.
- Realise the principle of interaction between students and the (presented) instructional media used.[19]

Muḥammad ʿAṭiyya Khamī added that educational technology can improve teaching and learning and solve problems through the following:[20]

- Overcoming the problems and difficulties of transmitting education and educational experiences by providing diverse and multiple learning experiences and situations that are rich in stimuli connected to learners' lives, both inside and outside educational institutions.
- Educational technology can overcome excessive verbalism and the teacher's presentation method, as well as traditional approaches that rely on rote memorisation and mechanical recall on the part of learners, through methods and resources that support effective learning and promote a shift towards discovery-based learning.

1. Objectives of Modern Digital Technologies:

The use of modern technologies in teaching and learning has a positive effect on both teachers and learners, enabling the achievement of a range of educational, scientific, cognitive, and experiential objectives. Accordingly, the employment of modern techniques in education, as a highly effective tool, can be invested in to attain the purpose of the teaching–learning process. What, then, are the objectives that modern technologies can achieve within educational institutions?

To answer this question, reference was made to researchers who have addressed these objectives, among whom considerable convergence was found regarding many of them.

Among the objectives sought by modern technology in the teaching–learning process, from the perspective of the researcher al-Fār Ibrāhīm ʿAbd al-Wakīl, are the following:[21]

- The learner should have the opportunity to take the initiative in self-directed learning by deciding for himself what to do, when to do it, and how to do it.
- The learner should enjoy the freedom to select and experiment in solving problems without frustration or pressure from the teacher.
- The learner should learn through activity and the stimulation of curiosity and be allowed to develop logical thinking and employ collaborative work.
- The learner should learn through trial and error.
- The learner should learn by developing their own conceptual structures.
- Learners should be presented with diverse concepts and problem-solving skills within their natural environment.
- The learner should be enabled to produce something and benefit from it later.

Ismāʿīl Zāhir Muḥammad mentioned a set of objectives that modern technologies, specifically the internet, can achieve in the teaching–learning process within educational institutions, which may be listed as follows:[22]

- This study contributes to the establishment of an information culture among learners to keep pace with the development of age.
- Contributing to the creation of a knowledge and information society and linking learners' interests to the world of modern technologies and information technology, beginning at school and extending to the home environment and, ultimately, the family.

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[19] Muḥammad Khamīs ʿAṭiyya, *Muntajāt Tiknūlujiyā al-Taʿlim* (al-Qāhirah, Egypt: Maktabat Dār al-Kalima, 2003), 21.

[20] Ibid.

[21] Majd Hāshim al-Hāshimī, *Tiknūlujiyā al-Ittiṣal al-Tarbawī* (Jordan: Dār al-Manāhij, 2007), 195–96.

[22] Ismāʿīl Zāhir Muḥammad, "Mashrūʿ al-Internet fī al-Taʿlīm," *Majallat al-Maʿlūmāt al-Tarbawiyya* 11 (1997): 35.

- A radical development in the education sector should be developed on the basis of simulating the natural circumstances in which learners live and addressing the problems they face through the possibilities made available by information technology.
- Younger generations (learners) have the capacity for self-reliance (self-directed learning) in searching for information and critiquing it in a manner that is consistent with scientific and cognitive particularities.
- Learners should be provided with broader opportunities to use information technology for a better future and seek to connect those opportunities to all domains and fields, whether at the economic, social, cultural, scientific, or cognitive level.
- Work to qualify learners (students and pupils) with means of communicating with others via modern technologies (information technology), thereby enhancing communication, mutual understanding, and the exchange of information among the various groups engaged in education, teachers and pupils.
- The positive interaction between learners and society can be enhanced through various media, especially the internet, thereby facilitating follow-up by parents and families. This constitutes an explicit call for the dissemination and use of information technology for every beneficial purpose.

The researcher Majd Hāshim al-Hāshimī, in his book *Educational Communication Technology*, mentions another set of objectives that modern technologies and techniques can achieve in the field of education, as follows:[23]

- The learner is encouraged to trust in his abilities and competencies to confront difficulties and solve problems, thereby granting him personal autonomy.
- Modern technologies contribute to the creation of situations, interests, and scientific methods among learners; they also help improve the quality of life.
- Working to awaken intellectual curiosity in learners and to provide them with different scientific situations.
- The learner is provided with various means to interpret information and data with a critical mindset and to undertake a scientific, objective evaluation of the possible solutions they have reached when making decisions.
- He is able to acquire knowledge and apply logical proofs, in addition to conducting investigations and inquiries within the limits of his scientific and cognitive expertise and competence.
- Equipping him with an essential skill, namely, the ability to express (in writing and orally) his ideas and opinions and to discuss them with others in an objective manner.
- The learner is trained in a set of perceptual, psychological, and motor skills, insofar as he practises his activities personally within laboratories and teaching–learning situations.
- Encouraging the learner to view the external world through a scientific and methodological perspective enables him to understand how he can engage with these perspectives and how they complement other perspectives and experiences. In other words, he consistently seeks to benefit from what he has learned in his academic and practical life.

Key Foundations and Criteria for Using Modern Technology in Teaching and Learning:[24]

In this section, the principal foundations and criteria for using modern technology in teaching and learning are addressed. Adhering to these foundations and criteria renders the teaching–learning process successful and enables it to achieve its objectives, insofar as the techniques employed are applied

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[23] Majd Hāshim al-Hāshimī, *Tiknūlūjiyā al-Ittiṣāl al-Tarbawī* (Jordan: Dār al-Manāhij, 2007), 195–96.

[24] ʿAbd Allāh ʿUmar al-Farā, *Al-Madkhal ilā Tiknūlūjiyā al-Taʿlīm* (ʿAmmān, Jordan: Dār al-Thaqāfa li-al-Nashr wa-al-Tawzīʿ, n.d.), 87.

methodically and with a clear vision, thereby ensuring their significance and role in the teaching–learning process. The discussion focuses on the foundations and criteria identified by the researcher ʿAbd Allāh ʿUmar al-Farā in *An Introduction to Educational Technology*.

A. Achieving the lesson objectives:

Each academic subject has its own way of presenting material to learners. A successful teacher selects the appropriate medium and suitable technique that enables him to achieve the objectives he has set for his lesson and seeks to realise. Accordingly, he should structure his lesson around a set of questions that facilitate selecting the most appropriate techniques to achieve the objectives and support effective performance.

B. Scientific accuracy of its information:

High-quality techniques should be used that provide sound, correct, and reliable results and do not contain scientific errors (in their programming or information) that could lead to erroneous outcomes.

C. Suitability to learners' cognitive level:

Each educational stage is distinguished from the others, given that psychological, age-related, cognitive, scientific, epistemic, and experiential characteristics differ from one stage and level of study to another. Educational techniques used at the primary level are not the same as those used at the middle level owing to differences in learners' characteristics from one educational stage to another (the language used; the level of processing, that is, the manner in which the topic is presented; and physical, psychological, and cognitive characteristics).

D. That the learner should find it engaging and attractive:

The quality and appropriateness of selecting the medium on the basis of the harmony of its colours, the clarity of its images, the novelty of its topic, or the nature of its movement will increase the learner's stimulation and interest while taking into account individual differences among learners in the degree of their inclinations and motivation towards such diverse educational techniques, including auditory and visual forms. In this case, the teacher must give careful consideration to this matter and must vary the use of educational techniques in a manner that is appropriate and consistent with the different groups of his pupils so as not to deprive any group.

E. Suitability of the size of the technique to the number of pupils:

A good technique enables all learners to clearly see, hear, or read the data. The teacher should pay attention to this criterion, given its importance and the educational and scientific benefits it offers.

F. Avoiding overcoming the technique with information:

The technique should focus on the essential information intended to be explained and clarified for learners. It may also focus on the central idea in each required piece of information. For additional ideas and supplementary information, the teacher may elaborate upon them through explanation and analysis. In this respect, it should be noted that the technique is not a substitute for the teacher; rather, it is a tool that assists him.

G. That the technique should have harmonious colours:

The teacher should select a technique whose colours are harmonious and whose artistic touches are consistent, thereby enticing and attracting the learner to look at it through its effective organisation and manner of presenting information and various data. All of these factors contribute to the development of learners' artistic, aesthetic, and taste sensibilities. This applies to visual techniques. For auditory techniques, vocal tone, rhythm, pitch, and volume, in addition to background music and sound effects, all contribute aesthetic and artistic touches that enable the learner to become familiar with them and enjoy their tones without boredom or anxiety, alongside their scientific and educational value.

H. The educational technique should be made from familiar environmental materials:

The production of an educational technique from materials drawn from the environment in which the learner lives, an environment familiar to him, leads to a rapid response.

In summary, the use of modern technology in the teaching–learning process, in accordance with the above foundations, criteria and other conditions, inevitably leads, in the end, to the teacher's success in his educational and scholarly tasks, particularly if he is qualified and understands what he is doing. Consequently, his educational performance becomes clearer in terms of vision and methodology.

Conclusion

Digital technologies stand out as one of the most significant structural transformations currently shaping the contemporary educational system. Their role is no longer confined to updating tools or accelerating the transmission of knowledge; instead, it has expanded to encompass the reconfiguration of learning patterns, the roles of educational stakeholders, and the mechanisms of assessment and pedagogical organisation. This digital transformation has opened up broad possibilities for improving educational quality through the diversification of knowledge sources, the activation of self-directed and collaborative learning, and the enhancement of interaction in both face-to-face and virtual learning environments.

Moreover, the integration of digital technologies has contributed to the creation of learning environments that are more flexible and more responsive to learners' diverse needs, thereby enabling attention to individual differences, supporting lifelong learning, and developing transversal competences, especially digital competence, critical thinking, and problem solving. In this context, the learner is no longer a passive recipient of content but rather a principal agent in constructing knowledge. At the same time, the teacher's role has shifted to that of a facilitator and learning designer, selecting appropriate digital resources and regulating the pace of learning in accordance with clearly defined pedagogical objectives.

Nevertheless, these gains remain contingent upon the availability of objective and organisational conditions, including the readiness of technological infrastructure, the clarity of educational policies that support digitalisation, and the provision of continuous professional development for teachers in both the technical and pedagogical dimensions. Unplanned use of technology may also create new digital divides and entrench educational inequality if the social and cultural contexts of educational institutions and learners are not taken into account.

Accordingly, enhancing the educational process through digital technologies requires adopting a holistic vision grounded in the integration of technical modernisation, pedagogical reform, and institutional organisation, thereby ensuring the informed and effective deployment of these technologies. From this perspective, investment in educational digitalisation represents an indispensable strategic choice for achieving high-quality education that can adapt to accelerating digital transformations and prepare human capital for effective integration into the knowledge society and the digital economy.

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