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The Role Of Digitalization In Achieving Quality Higher Education In Algeria

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Abstract:

This study aims to highlight one of the topics that has garnered significant attention in this era from researchers and specialists across various fields: digitalization. This concept has become associated with numerous areas, including education, where the concept of digitalization emerged following the rapid changes and developments resulting from the technological revolution. The research addresses some of the key concepts related to the study, such as digitalization, quality, and higher education, among others. It also explores the importance and role of digitalization in improving and achieving the quality of higher education, as well as the main advantages and obstacles facing the implementation of digitalization in higher education in Algeria.

Keywords: Digitalization, Quality, Higher Education Institutions, Higher Education, Educational Process.

1: Introduction:

The world has experienced rapid changes and a technological revolution that has affected many fields, including education, which is why this era is referred to as the “Age of Technology.” This development has had a significant impact on the educational process, as modern teaching methods now almost entirely rely on the interaction between the learner and the educational material. Traditional methods, which were based on direct instruction, no longer hold the prominent place they once did before the emergence of modern approaches that rely on technological tools. Educational professionals are now required to develop educational processes in line with this fast-paced technological change through various measures, such as the widespread use of modern technological tools and techniques, as well as the development of policies, curricula, and strategies to keep pace with these developments.

One of the key outcomes of the rapid technological advancement is the term “digitalization,” which is considered an emerging technology with a significant impact on the educational process.

Digitalization is generally an ongoing process undertaken by institutions to adapt to the demands of their clients and markets by leveraging digital capabilities to innovate new business models, products, and services. It seamlessly blends digital and manual operations while improving operational efficiency simultaneously.

On this basis, the use of digital systems in education has become an unavoidable necessity. Higher education institutions are now competing to integrate modern digital training methods into their curricula and classrooms. These tools are highly effective in motivating and engaging students, encouraging creativity.

Algerian universities are among those institutions that have strived and continue to strive to implement digitalization projects under the strategies established by the Ministry of Higher Education and Scientific Research, aiming to digitize the sector. The higher education sector has continued to evolve in line with digitalization developments, especially following the health crisis caused by the global “COVID-19 pandemic,” during which Algerian universities turned to educational and administrative platforms.

One of the manifestations of digitalization in the higher education sector is the use of information and communication technology in the teaching process, which helps diversify the academic and knowledge acquisition sources for learners. Additionally, digitalization plays a significant role in improving the quality of the educational process while saving time and effort.

As a result, most higher education institutions around the world are striving to lead the way in applying quality standards in order to take the lead in this area. Given the importance of this topic, this study addresses the significance of digitalization and its role in achieving quality in higher education.

Research Questions:

1: What is meant by digitalization and quality?

2: What is the importance of digitalization in the educational process in higher education institutions?

3: What are the advantages of employing digitalization in higher education?

What are the main obstacles to applying digitalization in the educational process within 4: the higher education sector?

5: What challenges are faced in the digital transformation of the educational process in higher education institutions?

2: Defining the Concepts:

2.1_Concept of Digitalization:

Digitalization is a term derived from the word "digitization." It is a new term with several synonyms in foreign languages such as digitizing, computerization, digitalization, and scanning. It has been translated into Arabic in several ways such as "digital numbering," "digital representation," or "digital and electronic archiving." In short, it refers to converting materials—whether visual, auditory, or textual—into digital formats suitable for circulation on digital devices, the internet, and storage on modern media such as hard and floppy disks, and is also suitable for online publication.

2.2_Concept of Quality:

Linguistically:

The term is derived from the verb "jad" (to be good), and its root is "joodah," meaning to become good. It is said that "the work is good," and the plural is "jiad" or "jiayid." "Jad al-rajul" means the person works well or brings about good results in his deeds or work**.(Fawaz Al-Tamimi, 2008).**

Terminologically:

Quality is the degree of fulfilment of the requirements expected by the client (the beneficiary of the service) or those agreed upon with them. It is the integration of features and characteristics of a product or service in a way that meets specific or implied needs and requirements. Alternatively, it is a set of characteristics and features of an entity that demonstrate its ability to meet the defined or expected requirements from the beneficiary. (Fawaz Al-Tamimi, 2008).

2.3_Definition of Higher Education Institutions:

A higher education institution is defined as any institution that admits students who have successfully completed their secondary education and, at the end of their university or professional studies, awards them a university degree. (Suhail Rouq Diab, 2009, p. 17).

As for a university, it is defined as: "An institution that prepares individuals for prestigious professions such as doctors, engineers, accountants, lawyers, teachers, etc. It also focuses on scientific research to develop knowledge."

(Amira Abdulrahman, Ahmad Barhamin, 2002, p. 8).

The concept of "university" (université) is derived from the Latin word "universitas," which means a group that includes a particular profession or craft. Later, the term came to refer to an academic union or association that includes a number of scholars, whether they are professors or students, indicating their gathering in this union.

2.4_Concept of Higher Education:

It is an advanced approach to dealing with knowledge according to specific and well-known standards, by transforming scientific effort and human skills in systems and scientific research into tangible outcomes that contribute to achieving material well-being and the utilization, development, and modernization of technology.

(Jaafar Abdullah, Musa Idris, Ahmad Osman Ibrahim Ahmad, 2012, p. 40)

2.5_Educational Process:

It is defined as a set of activities and actions initiated by both teachers and students, logically and sequentially connected to such an extent that we can predict their occurrence in many instances. (Mohammed Darrij, 1991).

3: Importance of the Study:

The importance of this study lies in shedding light on the role that digitalization plays in achieving quality education, a trend many educational and academic institutions worldwide, including higher education institutions in Algeria, have turned to amidst the technological revolution of this era.

4: Objectives of the Study:

The study attempts to uncover the significance of digitalization in the higher education and research sectors, and its contribution to achieving quality. The study also aims to identify the main advantages and obstacles facing the digital transformation in the educational process of this sector. Furthermore, it seeks to enrich scientific research in the field.

5: Digitalization in Higher Education:

Digitalization refers to the use of information and communication technology (ICT) in education for purposes such as storing, processing, retrieving, and transferring information. This plays a significant role in enhancing and improving the educational process through modern tools such as computers and their software, internet technologies like e-books, databases, encyclopedias, journals, educational websites, e-learning, email, voice mail, written and oral communication, video conferences, and virtual classrooms. (Sayed Mohamed Gad El-Rab, 2010).

6: Origins of Digitalization:

The concept of digitalization originated from historical developments in information facilities and institutions to facilitate some administrative tasks by introducing computers in the 1950s in the United States and Britain. This led to the disappearance of card catalogs, replaced by electronic records, allowing libraries to participate in record networks and share information. Digitalization in libraries grew through many meetings among major powers, including the Brussels meeting in 1995, aimed at supporting economic, social, scientific, and cultural development. This initiative was supported by the United States with funding from the National Science Foundation and NASA, and it focused on establishing digital libraries contributing to higher education and scientific research. (Ahmed Al-Kubaisi, 2008).

7: Importance of Digitalization:

The importance of digitalization can be summarized in the following points:

A/ Broad and deep access to information in its original and derivedprinting

B/ Ease and speed of acquiring knowledge and information, producing exact copies, and printing them when needed.

C/ Access to information in audio, visual, and colour formats.

D/ Reduced costs for obtaining information.

E/ The ability to critique sources and informational materials.

F/ Integration with other media such as sound, video, and images.

G/ Reduces time and space limitations. (Muneer Al-Hamza, 2011).

8.Objectives of Digitalization:

● Preserving and protecting collections from damage and disasters.

● Assisting in adopting new structures such as distance learning and various specializations.

● Bridging the digital gap between the intellectual output of Arab countries and developed countries.

● Producing high-definition digital images and using them to create high-quality printed outputs.

● Expanding job opportunities.

● Generating revenue from selling digital products on discs or offering them online, which helps ensure the continuity of operations. (Aysia Imad, 2006).

9: Manifestations of Digitalization in Modernizing Higher Education:

Digitalization in the higher education and research sectors has contributed to the modernization and development of this field. These include:

9.1.Digital E-Learning:

E-learning is one of the most prominent digital phenomena in higher education, defined by UNESCO (2006) as a process of acquiring knowledge and skills using communication and information technology.

Hiltz (1994) defined e-learning as education and learning within a computer environment using communication technologies and information networks to change learners' behaviors at any time and place.

George Elering (2004) defined it as using information networks to improve learning and teaching experiences within a traditional or virtual online classroom.

Al-Mousa & Al-Mubarak (2001) described it as a method of teaching using modern communication technologies such as computers and their networks, multimedia tools like sound, images, graphics, search engines, and online libraries, including portals for both remote and classroom learning. (Tarek Abdel-Raouf, 2014).

E-learning can be synchronous or asynchronous:

Synchronous E-learning: Involves real-time interaction between students and teachers via technology in an educational environment. This allows students to engage in discussions, ask questions, and receive answers using virtual boards and interactive walls, through chat rooms or virtual classrooms.

Asynchronous E-learning: Involves interaction between the teacher and students at different times. Courses and lectures are available on computers, CDs, or designated websites, allowing learners to access lessons whenever they need at their preferred speed. Interaction occurs via message boards and discussion forums.

9.2.Moodle E-Learning Platform:

The Ministry of Higher Education has launched a digital educational platform for university students, available on official university websites (Moodle).

Definition of Moodle:

Moodle stands for "Modular Object-Oriented Dynamic Learning Environment." It is a software package provided through the internet, allowing for the complete presentation and management of electronic courses, including user management, educational material management, communication, and activity management (assignments, quizzes).

Features of Moodle:

The Moodle system stands out from other e-learning management systems due to the following features:

- It is free and open-source software, proven effective in educational and training institutions.
- It supports Arabic in all its versions, along with other languages.
- It supports the FTP protocol, allowing for file uploads and exchanges.
- The system complies with international standards for e-learning systems, both educational and technical, including SCORM standards.
- It provides flexibility for instructors to modify, delete, and add content to the course, and to monitor student performance.
- It helps learners play an active role in the learning process, allowing them to teach each other using discussion boards.
- It provides necessary links and hypertext required to build course content, participant information, assignments, activities, training, and tasks, without needing knowledge of the programming languages used to create web pages.
- It supports files for training and simulation activities in various formats, such as HTM5/SWF.
- It provides communication tools that support dialogue and discussion, as well as conversations between participants using the platform's built-in tools or supported programs.
- It simplifies the management of conversations and discussions through Moodle for instructors, with tools that facilitate creating tests and assessment questions through the available evaluation features.
- It generates comprehensive statistical reports on student responses, such as the number of questions, remaining time, total score, and percentage, while providing immediate feedback.

▪ It performs effective functions, the most important of which is enabling the teacher to easily distribute schedules, data, content information, display documents, reading lists, and write reports and comments in a familiar manner.

9.3.Importance of Interaction in E-Learning Environments:

It is clear from the above that virtual learning environments, including the Moodle system, emphasize the importance of interaction and its significant role in both educational and pedagogical contexts. Therefore, great attention has been given to designing this environment and emphasizing some concepts related to the interaction process and the integration of learners into the learning environment. Various methods for individual learning are provided through the following:

▪ Solving problems that hinder learners' access to the virtual learning environment.

▪ Developing educational media used in the environment.

▪ Providing appropriate solutions to help learners use this environment, and offering a clear and concise explanation of how to navigate the virtual learning environment through the attached guide.

▪ Strengthening all forms of communication between learners and instructors.

▪ Supporting systems, methods, and models of individualized learning.

▪ Encouraging and motivating learners to discover knowledge, and utilizing explanations, texts, graphics, videos, and others to help them understand educational content.

▪ Offering various methods for learners to access knowledge.

▪ Aligning the educational process with the needs of the learners. (Mohammed Abdel Wahab Mahmoud, 2015).

9.4.Electronic Libraries:

Electronic libraries are a key feature of modernizing higher education and scientific research. According to Dr. Abdul Latif Sofi, an electronic library is one established and managed via computer systems, using a combination of micro-electronic equipment. It combines traditional sources with digital sources.

Dr. Abdul Rahman Faraj defines it as a collection of electronic or digital materials accessible via a local network or the internet.

The Encyclopedia of Documentation and Libraries defines it as a library without walls, whose collections are not in paper or microfilm format but accessible using computers and networking technologies. (Najiba Maadou, 2019).

10: Quality of Higher Education:

Quality in higher education has two dimensions: one is objective and measurable (institutional adherence to established standards and indicators), and the other is subjective, reflecting the emotions and perceptions of the service recipient, such as students and society.

(Adele Al-Owaidi, 2013).

11: Requirements for Quality in Higher Education:

Implementing quality in educational institutions requires specific requirements to properly understand its concept and apply it for internal and external beneficiary satisfaction:

■ Support and endorsement of quality management systems by senior management.

■ Establishing a quality culture, where organizational beliefs are reshaped to fit a new culture that plays a significant role in supporting new development and quality improvement trends in educational institutions.

■ Developing human resources, updating curricula, adopting modern evaluation techniques, and updating organizational structures to achieve required educational reforms.

■ Involving all staff in efforts to improve performance.

■ Continuous training and education for all individuals.

■ Identifying the needs of internal beneficiaries (students) and external stakeholders (community members) and assessing these needs against quality performance standards.

■ Using quantitative methods to make decisions, ensuring objectivity and reducing subjectivity.

■ Clear, understandable, and applicable work instructions. (Sawsan Shakir Majid, 2008).

12: Quality Standards in Higher Education:

University education represents an advanced stage of learning, embodying efforts and programs that aim to change student behaviors to prepare them to serve society. The philosophy of quality in university education is based on what students acquire in terms of knowledge and diverse skills that develop various aspects of their personalities. (Boudlal Ali, 2014).

Currently, there is agreement on defining three key dimensions of university work:

1. Building thinking and productive minds.
2. Knowledge creation or production.
3. Serving the community and the nation.

13: Advantages of Implementing Digitalization in Higher Education:

There are many advantages to applying the digitalization process, especially in education or what is referred to as digitalization and e-learning, including the following: (Sayed Mohamed Gad El-Rab, 2010, pp. 162-164)

Connectivity: The benefits of convenience and ease in the communication process are evident.

Convenience and ease of educational services for students participating in the system, including:

¤ The compatibility of scientific courses with each participant's schedule.

¤Education requires physical attendance.

¤ Education aligns with the pace of each individual in acquiring information, skills, and knowledge.

¤ There is no need for a fixed location to acquire knowledge; it could be from home, work, on the road, or elsewhere.

¤ The ability to read educational materials online or download them for later reading.

Cost and Choice: There are numerous advantages related to cost and choice in the implementation of e-learning, including:

▪ The availability of multiple programs, including a broad system of scientific courses available for each specialization, suited to the financial needs for covering online study costs and expenses.

▪ Availability of multiple e-learning programs that vary in terms of awarding academic degrees for different professions or obtaining specialized certificates.

▪ The possibility of continuous education.

▪ The possibility of individually registering for scientific courses.

▪ Availability of various payment options and methods for collecting fees according to each individual's budget and needs.

▪ The ability to obtain certified or equivalent teaching programs at a significantly lower cost than through traditional education methods.

Flexibility: The flexibility of delivering e-learning services is extremely important in meeting the needs and desires of the target groups. These advantages include:

▪ E-learning provides participants with the necessary information and skills based on their preferences, needs, and educational desires.

▪ The possibility of bypassing subjects (scientific courses) that participants (learners) already have prior knowledge of, focusing on key topics or points that need to be learned.

▪ The ability to personally choose courses based on learning preferences and abilities, allowing the use of educational tools suited to each learner's preferred learning style, needs, and capacities.

▪ The ability to retain all forms and media of educational materials, allowing the learner to access and enjoy them whenever desired.

14: Obstacles to Implementing Digitalization in Algerian Universities:

The use of information and communication technology (ICT) in higher education in Algeria faces several problems and obstacles, the most significant of which are:

14.1.Technical Obstacles:

These include:

▪ Difficulties and problems in operating computers in university buildings.

▪ The scarcity of standardized specifications and criteria for the devices used within a single university.

▪ The outdated computer equipment and software used in university libraries due to rapid technological advancements.

▪ Weak infrastructure in many universities and their lack of readiness to accommodate such technology.

▪ Poor communication network infrastructure in many areas.

▪ Weakness in the modern technology sector in developing countries due to limited manufacturing capabilities and a shortage of qualified technical expertise or its migration.

14.2.Human Obstacles:

These include:

▪ Weak cultural awareness of information technology at the social and organizational levels within universities.

▪ The limited number of training programs in advanced technology within universities.

▪ The growing perception among some managers and authorities that change threatens their power.

▪ A lack of incentives for staff to adopt digital methods.

▪ Insufficient knowledge of computer technologies and the fear or reluctance some administrators and employees have when using them.

▪ Lack of trust in the protection of confidentiality for information and personal transactions in the digital environment.

▪ Resistance from staff to apply the technology, their weak willingness to use it, and their reluctance due to psychological and health concerns, along with a natural tendency to resist change.

14.3.Financial Obstacles:

These include:

▪ Insufficient financial resources allocated to developing the necessary infrastructure for implementing digital projects, especially in building networks, connecting sites, and upgrading hardware.

▪ The limited resources available to universities due to their reliance on fixed and restricted budgets.

▪ Low financial allocations for training and qualification operations aimed at implementing digital projects.

▪ High costs of software and electronic equipment. (Sleima Saidi, 2013).

Conclusion:

We have attempted, through this study, to shed light on the role of digitalization in achieving quality higher education, addressing concepts such as digitalization, quality, etc. The study also discussed the origins of digitalization, its manifestations in modernizing higher education, the requirements for quality in higher education, quality standards in higher education, the advantages of implementing digitalization in the higher education sector, and the obstacles to digitalization in Algerian universities, including: technical obstacles, human obstacles, financial obstacles

In conclusion, it can be said that the implementation of digitalization in higher education has become an inevitable necessity more than ever before, despite the barriers and challenges that hinder the continuity of this project. However, with collective efforts, changing mindsets in line with current trends, and effectively utilizing this system, the digitalization project in higher education will achieve its desired goals.

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