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Electronic Education At The Algerian University (Reality, Challenges And Strategies For Its Quality Improvement)

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Abstract:

The current study aims to explore the reality of e-learning among university faculty members. To examine this reality, the theoretical aspect related to the study's background was addressed, including the definition of the problem, its objectives, importance, basic concepts, and responses to the study questions regarding the state of e-learning and the elements essential for its success. The field aspect involved applying a study tool focused on the obstacles faced in electronic education. To achieve these goals, a descriptive approach was employed through survey studies. The study sample consisted of 95 professors who were randomly selected. The research tool utilized was a questionnaire on learning barriers in electronic education. The findings indicated that the majority of the study participants agreed, to varying degrees, on the obstacles identified in the questionnaire. Notably, the obstacle related to the weakness of the Internet network ranked highest, followed by the lack of training for both students and faculty members on e-learning. Based on the results of the study, a set of recommendations was presented.

Keywords: E-learning, Algerian University, Reality, Challenges, Quality.

Introduction:

Advances in information and communication technology have led to an abundance of information in all disciplines, Additionally, the distance between the information and the learner is disappearing; it also led to the emergence of the need for modern skills, methods and techniques that have become an integral part of the lives of modern societies. This has made the Algerian university in dire need of developing learning and teaching methods and skills to enable the learner to acquire information himself and program it electronically. The goal of education in this era is no longer to acquire knowledge in itself, but rather to acquire self-learning skills and the ability to employ advanced information and technologies in solving life problems. There have been transformations in some learning and teaching methods, and the e-learning method is one of the modern methods in the current century that contributes to increasing the effectiveness of learners. It is also one of the most rapidly growing fields as a result of scientific and technological developments. There is an increasing demand for integrating technology into education with the aim of building a generation capable of dealing with the changes of the current era.

It seems that traditional education in its current form will not be able to meet the needs of the learner, and this is largely due to the increase in the information required and available on the Internet. From this standpoint, educational institutions must prepare educated individuals who are able to deal with computers in order to keep pace with greater challenges facing different societies in this century (Akil, 2009, p16)

Paying attention to the education sector in general and higher education in particular ought to be considered one of the priorities of the development plans of any national policy. The educational system in Algeria has sought to facilitate communication between the parties of the educational process, i.e. between the teacher and the student, through digital education through teaching methods and strategies and the mandatory application of e-learning as the best strategic solutions to confront the challenges of the Corona pandemic and achieve the set goals.

1) Defining the Problem:

The world today is witnessing a tremendous scientific development and a rapid technological progress in various fields, especially in sectors such as information and communication technologies; some universities have invested in this progress by taking advantage of these technologies inside the classroom. Several educational institutions also established an integrated education based on these technologies, which is called e-learning, and some countries have developed plans to make e-learning a basic element in the educational curriculum.

Today, the world is witnessing a new phase of technological development in which the outcome and conclusions of three combined revolutions, firstly, the information revolution that caused a huge knowledge explosion represented in that enormous amount of knowledge in numerous specializations and languages. Secondly, the revolution in communication means represented by modern communication technologies, which began with wired and wireless communication means, passing through television, and televised texts, followed by the optical mechanisms and satellite technology that represent the most advanced civilizational development that man has achieved so far, and finally the revolution of computer devices that has penetrated all aspects of life and merged with all means of communication and merged with them, with the Internet representing that merger in its clearest form (Nasser Ali, 2016, p. 17)

E-learning is one of the most important modern learning methods. It helps solve the problem of knowledge explosion and the increasing demand for education. It also helps solve the problem of overcrowded classes by means of distance education. It also expands opportunities for admission to education and enables the training and qualification of workers teaching housewives without the necessity of physical presence, which would raise the percentage of learners and eliminate illiteracy. E-learning increases the effectiveness of learning to a large extent, reduces the time and the cost of training, provides an interactive learning environment, and allows all types of learners to study at the time and place that suits them (Al-Shanaq, 2008, p. 165).

The chances of success for the e-learning initiative could be limited due to the large amount of work required and the critical importance of the e-learning initiative. Therefore, the private sector must be involved in building the foundations of training and education, and utilizing technical elements to reduce the cost of e-learning and provide training material as well as human and technical capabilities. Al-Arifi (2004) believes that the most important obstacles to e-learning are the weakness of the infrastructure, the decline of educational quality, the cost of development, the absence of a national plan, the limited content in the market, the absence of

human interaction, and the lack of equal opportunities. He recommends the necessity of supporting the e-learning initiative in schools and universities and strengthening of communications infrastructure and devices, and conducting studies on the feasibility of e-learning in improving education and the necessity of comprehensive training on this technology. Hamam (2004) recommends exploiting e-learning classes so that more time be used in them, rather than traditional lectures where most of the time is spent on education. Rabah (2004) also mentions that the European Union recommended that by 2006, e-learning programs should be completed to implement and apply the e-learning plan in Europe in the years 2004 and 2006. He also recommended the necessity of implementing programs training in e-learning to enable the population to possess the skills required in the knowledge society (Attia, 2006, p. 22)

As individuals have become abler to benefit from Internet services, e-learning is increasingly expanding. Despite the multitude of terms referring to e-learning, such as online education and Internet-based education, e-learning remains the most widely used and most widely understood. It is also defined as a broad term that includes a wide range of educational materials that can be presented on CDs, distance education, direct online education, and electronic private lessons (Abdeaziz, 2009, p. 22).

Despite the importance of e-learning and the initial results that have proven its success, its implementation is still in its early stages, as it faces some obstacles and challenges, be they technical, embodied in the lack of adoption of a unified standard for formulating content, and privacy concerns and the possibility of hacked, or educational including the lack of incentives provided to students to encourage them to embrace e-learning, in addition to the lack of support and training. Despite enthusiasm for e-learning and its many advantages, this type of learning, like other educational methods, faces some implementation challenges. These include the small number of teachers who are proficient in e-learning skills, the problem of continuity of preparation and training of teachers who are proficient in e-learning skills, and technical problems such as a sudden malfunction during the presentation of the lesson, such as computers and display devices dysfunctions or the network connection interruptions. There are also economic obstacles such as the weakness of the infrastructure for e-learning and the low level of individual income, which does not allow the learners to purchase their own computers to benefit from e-learning opportunities. Other challenges comprise the lack of support and cooperation, the possibility of hacking content and exams, and the lack of awareness about this type of education (Al-Shanaq, 2008, p. 166)

The recommendations of many conferences also stressed the need to pay attention to e-learning and its effective role in the educational process, including the International Conference on E-learning held in Denver, USA in 1997. Its most important recommendations were that e-learning and all its means will be necessary and common for learners to acquire. Among the recommendations was the fact that the skills needed for the future e-learning will open new horizons for teachers and learners that were not available before. The First International Conference on E-learning and Distance Education held in Riyadh in 2009 recommended the necessity of e-learning and the importance of developing plans for e-learning. During the First International Conference of the E-learning Center held in Bahrain in April 2006, the most important recommendations were to benefit from e-learning in converting some of the curricula prescribed in schools, colleges and universities from their traditional form to e-curricula based on interactive educational plans and well-studied and directed policies, and to qualify professors and faculty members in various educational institutions to enter the era of e-learning through intensive programs prepared for this purpose (Hassamou, 2011, p. 246).

E-learning has become more necessary than ever due to the circumstances the world is currently going through due to the emergence of the Corona pandemic. As is the case in many countries around the world, the Ministry of Higher Education has decided to suspend studies to preserve the safety of students and avoid the spread of the virus. Educational institutions were at the forefront of the sectors most affected by the Covid-19 pandemic the world over, as the pandemic led to the interruption of many people from education, which prompted countries around the world to search for alternative methods without suspending studies. In this context, many initiatives came with a sudden shift from traditional education to distance education and e-learning, after traditional education failed to achieve its goals and the requirements of the education system and accommodate large numbers of learners at all levels. The tremendous technological development contributed to achieving this transition, which in turn created a new reality in rethinking the education system in terms of its philosophy, goals, curricula, and means, and studying all future and expected possibilities in the stage of coexistence with this pandemic and beyond. There was an initial belief that the pandemic would represent a passing crisis, meaning that it would disappear with time. In this context, Algerian authorities have begun to think about the procedures through which the school year will be completed, which included dividing students into groups and subgroups, achieving social distancing, respecting the proposed protocol, implementing the distance learning experience, and using many and e-learning applications. As said earlier, despite the many advantages of this type of education, especially since we are in dire need of it now, there are still obstacles and challenges facing it, including the weakness of the information and communications technology infrastructure. Although e-learning has achieved great success in developed countries that have a strong technological infrastructure, the matter is different for underdeveloped countries, which suffer from the stagnation of the education system, the difficulty of evaluation in exams, and the lack of awareness of this type of education among the different parties involved in the educational process. With the development of the health crisis, education systems responded to the world and governments took immediate and rapid measures, as the transition from traditional education to e-learning was sudden to ensure the continuity of education and maintain the safety of students and the competent authorities in the field of education by issuing decisions to close schools, universities and other education institutions, as this decision has become a priority for all countries, so many of them have resorted to information and communications technology and moved to providing lessons via the Internet and placing them on the university facilities, and implementing the experience of distance education and e-learning. This study attempts to discern the reality of the e-learning strategy in the higher education sector as well as knowing the elements of success of this type of education. From this standpoint, the study questions came as follows:

1. What is the reality of E-learning strategies for university faculty members?
2. What are the obstacles and difficulties faced by teachers in Algerian universities regarding e-learning?
3. What strategies and mechanisms can ensure the success of E-learning in Algerian universities?

2) Importance of the study:

Evaluating the reality of the e-learning experience in the higher education sector in Algeria in terms of the difficulties faced by the parties to the educational process and the elements of its success from the point of view of faculty members.

The results of this study contribute to providing a clear vision of the reality of e-learning in the higher education sector.

Access to suggestions and recommendations that help mitigate the obstacles to e-learning and improve its use and development.

The importance of the current study is evident from the results it yields on information and data that contribute to the development of e-learning and increasing its effectiveness in Algerian universities.

The study contributes to providing officials at the Algerian university with the obstacles and difficulties that prevent the generalization of the use of e-learning in it and providing them with suggestions and recommendations to make appropriate decisions to work on reducing these obstacles and developing it as a necessity in the current circumstances.

3) Study objectives:

Knowing the reality about the e-learning strategy during and after the Corona pandemic in the higher education sector in Algeria.

Knowing the obstacles to implementing e-learning from a point of view teachers.

Coming up with proposals and solutions that would help in developing an e-learning Strategy, improving its use and increasing its effectiveness.

Drawing the attention of the competent authorities to the need to develop this type of education and creating the appropriate conditions for its application and generalization in an appropriate manner.

Knowing the most important elements of the success of e-learning in Algerian universities from the professors' point of view.

Revealing the challenges facing the higher education sector during the implementation of the e-learning experience and its future vision.

4) Study concepts:

1.4) The concept of e-learning:

E-learning is a word of Greek origin and consists of two parts, the first Techno means craft, skill or art, while logy means science or study. Hence, the word means the science of performance or the science of application.

It is one of the forms of distance learning based on the use of technology and modern means of communication represented by networks and computers to provide educational content to the student anywhere and at any time and to provide a number of electronic sources that help in individual learning, and it allows the student to interact with the teacher, content and colleagues synchronously or asynchronously through what the e-learning system provides in terms of tools that help the learner to interact and communicate.

It is also known as providing training and educational programs via the Internet in a synchronous manner and based on the principle of self-learning, or learning with the help of the teacher. Therefore, it is considered one of the most important means of distance learning (Talal, 2012, p. 226).

Al-Mousa (2002) defined it as a method of education using modern communication mechanisms, such as computers, their networks, and their various media, including sound, image, graphics, search mechanisms, electronic libraries, and Internet portals, whether remotely or in the classroom.

While Abdelaziz (2008) defined it as one of the forms of distance education that depends on the capabilities and tools of the international information network, the Internet, and computers in studying specific educational content through continuous interaction with the facilitating teacher, the learner, and the content (Hossam, 2011, p. 253).

It is procedurally defined through this study as education using electronic digital information with the help of computers and the Internet remotely, and it refers to the use of information and communications technology in supporting the educational process according to modern educational foundations.

6) Study methodology and procedures:

1.6) Study method:

Due to the nature of the study, the descriptive approach was chosen as it is the appropriate approach for such studies. It is defined as a method for describing the subject to be studied through a correct scientific methodology and depicting the results reached in expressive digital forms that can be interpreted.

3.6) Study sample:

The study sample consisted of (95) professors who were selected randomly.

4.6) Study tool:

The data were collected based on a questionnaire related to e-learning. The study tool consisted of two parts, the first for personal data, and the second consisting of 31 paragraphs distributed over four axes, which are (1) obstacles related to the student, (2) obstacles related to e-learning), (3) obstacles related to the university, (4) academic and administrative obstacles.

7) Answering and discussing the study questions:

1.7) Answer to the first question:

What is the reality of E-learning strategies for university faculty members?

For more than twenty years (from the eighties to the present day), higher education institutions in Algeria have been experiencing a very deep and complex crisis that has led to the deterioration of the situation of higher education. This is due to the internal and external challenges imposed by globalization, the wealth of information and advanced technology, and the rapid growth in the number of students. Therefore, Algeria must promote higher education

so that it has a role and contribution to the development process, by developing and reforming its management, adding more democracy and transparency, and increasing participation in the management of the Algerian university (Khamra, p. 461).

Currently, the experience of the Algerian university today in the field of virtual education and e-learning, which was imposed by the new virus (Corona) on the Algerian university to adopt this type of education and use information and communication technology, which would contribute to the development and improvement of the educational system in the Algerian university and thus contribute to achieving human development and Algeria, like other countries that have attached great importance to the field of distance education and learning, and the experience of the Algerian university for e-learning, virtual education, technologies and modern technological media is still in its infancy, due to the lack of culture and awareness of this type of educational methods and methods, and the supervisory ministry (Ministry of Higher Education and Scientific Research) has created virtual sites and platforms through which educational lessons and lectures are broadcast to students in various specializations, and this type of education in the Algerian university remains a bet on the ways of mechanisms and strategies outlined by the state represented by the supervisory ministry, the Ministry of Higher Education and Scientific Research, and the extent of the effectiveness of these mechanisms for the success of this type of education (Bouskra, 2021, p. 94)

The distance learning process approved by the public authorities to help limit the spread of the Covid-19 coronavirus requires some conditions, such as high flow.For the InternetTo achieve full response from professors and students to this type of education and in light of the comprehensive quarantine in some states and partial quarantine in other states to limit the spread of the Corona epidemic, most of the country's universities began activating the distance education process immediately after receiving a letter from the Minister of Higher Education and Scientific Research at the beginning of March 2020. The universities implemented this decision through the curricula for all years and specializations via including lectures and practical work to enable students to follow their lessons, whether through videos on YouTube or elsewhere.

The study of the reality of e-learning in the higher education sector in Algeria must be studied from the perspective of the difficulties and challenges that face education and prevent its widespread use, including:

The internet is weak, as high speed streaming is required, which is what Algeria lacks, as the streaming speed, according to the latest statistics, is considered among the weakest in the world.

Lack of awareness among teachers and lack of interest in this type of education due to lack of interest on the part of officials because they mostly belong to the traditional education generation.

The university’s lack of interest in this type of education and the failure of countries to activate it by not harnessing all the capabilities for this type of education (Laakel, 2021, p. 701)

There is a significant lack of collaboration that foster the use of new technology at the higher education level to improve national, regional and international cooperation.

Lack of advanced pedagogical supplies, equipment and means and their lack of popularity among pedagogical activity and scientific research circles.

The management of higher education institutions in general is still characterized by a high degree of centralization, which requires more flexibility and the participation of all stakeholders in decision-making.

The project of employing information technology in higher education requires significant financial costs due to the following factors:

The high prices of technological means and their maintenance, the rapid development of technology, which makes it difficult to keep up with and acquire it, and the high costs of training human cadres on its use.

This type of difficulty results from the nature of technology itself, as it represents a highly complex and advanced system in the technical sense.

Among the technical problems facing the process of employing and using this technology are the following:

The difficulty of periodic maintenance due to the successive discoveries in this field.

Lack of qualified and specialized technical personnel, which makes reliance on foreign expertise almost total, which in turn requires large financial expenditures.

Resistance and rejection by some professors of this modern technology and adherence to old teaching methods due to:

The feeling that using technology will increase the burden on teachers, some practitioners even feel that their leadership role in the educational process is threatened.

Inability to make good use of modern technology, and unwillingness to adapt to modern methods

Privacy and confidentiality: The attacks on major websites have affected teachers and raised many questions in their minds about the impact of this on e-learning in the future. Therefore, hacking content and exams is one of the most important obstacles to e-learning.

The ongoing need to train and support teachers and administrators at all levels, as this type of education requires continuous training according to the innovation in technology (Khamra, p. 467)

The academic year (2019/2020) was an exceptional year by all standards, due to the restrictions of the Corona pandemic. The academic calendar was changed, as it became more important to prioritize the physical and health safety of students over the success of the academic year in any way. Several media were used, from the university's website to the colleges' Facebook pages, to connect professors and students, informing them of the need to activate e-mail and various media in the interaction between professors and students and provide them with lessons and necessary corrections to notes, in addition to discussion reports. Later, the Ministry of Higher Education and Scientific Research adopted the distance university education system by including platforms on the universities' websites that are accessed by professors and students to upload and access lessons as an alternative to in-person education, amid questions about the extent of the success of this experiment in light of the presence of a number of obstacles it faces. Difficulties have emerged related to the degree of comprehension

of lessons at the level of recipients due to its privacy and the extent of their possession of the means and the Internet, in addition to the lack of commitment. Many students, despite their knowledge of the existence of lessons via websites and digital platforms, have not viewed them or interacted with them. Considering that access to the platforms was not mandatory, and that the commitment of professors to prepare lessons and include them on the universities' electronic platforms was below the required level (Salman, 2021, p. 383)

All the previous difficulties and challenges do not negate the importance and necessity of moving towards relying on distance education in Algerian universities, considering that it has emerged as the only alternative for the continuity of education and students completing their lessons in light of the Corona pandemic that hindered the work of universities and all institutions and the movement and interaction of individuals.

2.7) Answer to the second question:

What are the obstacles and difficulties faced by professors in Algerian universities regarding E-learning?

To answer this question, the study tool was a questionnaire administered to a sample of professors with the aim of knowing the most important and severe difficulties they faced in e-learning. The questionnaire phrases tackled a set of obstacles related to e-learning with two answer options: "agree" and "disagree." The results were as follows:

N°	Phrase	Agree
1.	Not knowing much about e-learning related software	70%
2.	The university does not provide home subscription with the Internet for students to practice e-learning.	75%
3.	Students are busy with websites that are not related to e-learning during the education process.	80%
4.	The large number of students does not allow the opportunity to use e-learning.	60%
5.	Lack of awareness among community members of this type of education	50%
6.	The university does not have the material and proper incentives to employ e-learning.	75%
7.	Slow internet and disconnection consume a lot of time in e-learning.	100%
8.	Lack of e-learning specialists	85%
9.	Difficulty in applying e-learning in some subjects, especially those that require realistic skills and observations	65%
10.	Difficulty controlling e-learning outcomes	35%
11.	The university does not train students on e-learning.	100%
12.	The financial burden of e-learning on the university limits its use.	65%
13.	Lack of incentives to promote e-learning	80%
14.	Lack of e-learning programs	70%
15.	The prevailing education system does not allow the use of e-learning.	45%
16.	The need to train students on how to use e-learning	90%
17.	Difficulty of switching from the traditional way of learning to the modern way	70%
18.	Lack of ongoing training for e-learning	80%
19.	The university does not train faculty members on e-learning.	100%
20.	Students' lack of response and interaction with the new style of education	75%
21.	I do not have experience in e-learning	65%
22.	No internet at home	70%

23.	I don't have enough time to use e-learning.	10%
24.	My knowledge about e-learning is limited.	35%
25.	Ease of access to content and exams	65%
26.	The university does not encourage the use of e-learning.	75%
27.	English is a barrier for me in using e-learning.	65%
28.	I do not have experience using the Internet	01%
29.	The expected benefits of e-learning are few.	45%
30.	I am not convinced of the importance of e-learning	03%
31.	I do not have a personal desire to use e-learning.	30%

It is clear from the results of the table that most teachers agree, to varying degrees, on the items of the study tool as challenges and difficulties facing e-learning. The table results also show that the most severe obstacles that teachers faced in e-learning were slow internet and disruptions and the absence of students training students on e-learning. The university does not train faculty members reached a rate of 100% compared to other obstacles, this is due to the weak network coverage in most areas, which is consistent with the results of the Manea study. (2021) Kishu study (2020) which showed that the failure to spread the Internet to all regions, especially remote ones, negatively affects the process of education and distance communication. Quarantine and social distancing measures also have a negative impact on internet speed. On this basis, it appears that the biggest and most influential obstacle, which ranked first in this study, is the slowness of the Internet network and weak connection, and this is because strategy e-learning relies heavily on the Internet, and without it, communication and information cannot be delivered to the learner.

On the other hand, the results of the table show that the majority of professors agree with the obstacles mentioned in the study tool, with varying percentages. This can be explained by the recent introduction of this type of education at the university, which results in many people not knowing the software related to it added to the lack of awareness among members of society about this type of education and the lack of specialists in this field, the difficulty of controlling its outputs and the lack of clarity of the systems and methods by which its procedures are carried out. The lack of programs and the students' lack of response to the new style due to their being accustomed to the traditional style in which they currently learn has led to their lack of interaction with it. In addition, the university's financial obligations and burdens resulted in the lack of incentives for students. Other hindrances include insufficient equipment, the lack of adequate training for both students and teachers on this type of education and the lack of incentives to encourage its use (Attia, 2006, p. 202)

The results of this study also agree with the results of Al-Mohsen's study (2003), which yielded results indicating that there are obstacles to e-learning, such as the lack of availability of computers and the Internet and their speed, and human obstacles such as the lack of sufficient training for the teacher and the lack of conviction of decision-makers about this type of education. It also agrees with the results of Al-Khalifa's study (2003), which concluded that the biggest obstacle to the effectiveness of e-learning lies in the weakness of the Internet infrastructure in some countries, which limits the speed of data flow. It also agrees with the results of the study of Muhammad, Al-Sheikh, and Attia. (2006) which aimed to reveal the obstacles to using e-learning from the students' point of view. The most prominent of these obstacles are the lack of knowledge of many software related to e-learning, students' preoccupation with sites unrelated to e-learning during the learning process, the large number of students and the lack of awareness of community members of this type of education, the university's lack of material and moral incentives to implement e-learning, the financial cost of

e-learning programs and the slowness of the Internet, the lack of specialists in the field of e-learning, the lack of training students in e-learning, the lack of e-learning programs, and finally the lack of Internet at home.

Based on the results of this study, it can be said that the e-learning process in the higher education sector in Algeria came as a sudden and immediate decision in response to the state of emergency resulting from this pandemic, one of the negative repercussions of which was the complete cessation of studies. The only solution was to implement an e-learning strategy that faced difficulties and obstacles in terms of planning, good preparation, training and means. Despite these difficulties, this type of education needs an in-depth study on how to develop and generalize it, the requirements for its quality and making it possible to get out of this crisis and prepare well to face most of the potential challenges facing the higher education sector in Algeria.

3.7) Answer to the third question:

What is the reality of E-learning strategies for university faculty members?

Complete success for the e-learning strategy requires overcoming some obstacles and shortcomings, which are as follows:

The novelty of this technology in our country, especially since most teachers and students are accustomed to traditional lessons and the modest control of this process by some teachers due to their weak training.

The lack of internet and its weak flow prevents students from browsing documents and downloading lessons, in addition to the lack of direct communication between the two parties, professors and students, which makes some courses difficult for them to understand.

Students do not have the financial means to purchase a computer, smartphone, or pay internet fees.

The problem of teaching and evaluating practical classes in scientific and technical departments (taking into account the nature of specializations)

Difficulty in communicating to obtain information, especially in technical, engineering and biological sciences. which requires documented and trustworthy references, and this affects the delivery of information and the reception of the course.

The double effort on the part of the professors, as it is a psychological, social, physical and educational burden on the lecturer (Boukhadouni, 2020, p. 71)

To ensure the success of this type of education, the following strategy must be applied:

Providing the infrastructure for this type of education, which is represented in preparing qualified and trained human cadres.

Developing programs to train students, teachers and administrators to benefit from such technology.

Adapting curricula to the rapid changes in digital knowledge and meeting the growing demand for education to achieve quality standards in this field.

Applying the principles of active learning in education to meet the growing need for sustainable human development, bridging the economic gap between countries

Reducing the cost of education and reducing the rate of digital and information illiteracy among individuals (Areeq, 2019, p. 254)

Developing programs to train students, teachers and administrators to make the most of technology.

The State's initiative to develop educational policies and strategies that are based on the needs of the era and keep pace with the evolution of scientific and technical development, and adopt the development of educational and technological plans to benefit from scientific transformations in comprehensive human development projects.

The state encourages the private sector to establish national companies to manufacture computers and produce the necessary software, as well as work to provide the necessary infrastructure, especially in the field of communications, to facilitate the use of the Internet.

The state's initiative to work on developing systems and legislation to eradicate information technology illiteracy in educational circles, and to work on developing curricula and encouraging the use of the Internet in education, in addition to spreading awareness in society about the importance and role of information and communication technology.

Interest in establishing training courses for university and higher education institutes students to enable them to master research and information technology.

Linking universities and higher education institutions together in an information network, which provides university and higher education policy planners, decision makers, executives and research professors with the information necessary for the success of their work.

The need to introduce radical changes and amendments to higher education systems and expand education patterns. Such as the establishment of the Open University, Free universities, colleges of technology and other new patterns (Khamra, p.468)

Reviewing and renewing the content and study materials already available, before starting to develop any new content or material.

Analyzing and understanding the strengths and weaknesses of the available course delivery systems or educational programs, especially those related to audio-visual technology and printed materials, not just how they are supplied through optic fibre cables, satellites. Nevertheless, the learners' needs and course requirements must be confirmed before choosing the appropriate educational technology mix for distance teaching.

Ensuring that each site is equipped with the necessary technological facilities and is easily accessible, while providing immediate communication lines to solve problems facing learners (Hossam, 2020, p. 69)

Conclusion:

It has become clear that e-learning and distance education have become a strategic option for every country that appreciates and gives great importance to the education sector for its advantages in the prosperity and development of society, and an indispensable alternative, not in exceptional circumstances as it is now to confront the repercussions of the Covid-19 pandemic, but to build a new generation capable of benefiting from the data of industrial wealth, despite the negative reality that this pandemic poses, full of obstacles and difficulties. However, the study has drawn attention to the importance of e-learning despite the obstacles and problems that confront it. Despite the exceptional problems and circumstances posed by this pandemic, which must be dealt with consciously to build a strong university system, this can only be attained by keeping pace with current developments in the field of e-learning adopted in developed countries. On this basis, Algeria is considered less developed compared to these countries, and perhaps this draws attention to addressing the situation and taking these obstacles into consideration. Developing distance learning and developing e-learning and generalizing it to confront the challenges created by such crises in the future is a must. Based on the results of the study, the following recommendations can be made:

- ✓ Developing scientific skills, enhancing creativity, encouraging collaborative work which will result in the ability to communicate, work in groups, and openness to the world and other cultures.
- ✓ Signing agreements and partnerships with some advanced universities to provide distance learning and training in order to exchange experiences and information, which contributes to developing this type of education.
- ✓ Raising the level of Internet service in Algeria in terms of speed, quality and coverage, in addition to providing free Internet services to the websites and applications of Algerian educational institutions.
- ✓ Encouraging university students to use e-learning in academic education by using the Internet as well as information and communications technology to increase their experience and interaction with this type of education.
- ✓ Holding training courses in the field of e-learning for both professors and students and helping to eliminate all obstacles that prevent the implementation of e-learning.
- ✓ Training students and faculty members on e-learning techniques with the aim of developing and generalizing it.
- ✓ Holding academic seminars and organizing national and international conferences with the aim of exchanging experiences between universities that have achieved remarkable progress in e-learning.
- ✓ Reviewing educational policies in the higher education sector and working to overcome obstacles and achieve the future vision for the success of this type of education.
- ✓ Enhancing research and development in the fields of e-learning and developing its effectiveness based on the active learning strategy
- ✓ Holding training courses for professors and students in the field of e-learning to generalize it across various universities in the country.
- ✓ Providing the infrastructure with qualified and trained human cadres for the success of this type of education.
- ✓ Monitoring incentives and rewards to encourage the generalization of this type of education and its development to keep pace with advanced universities in this field and for the Algerian university to attain a leading position among these universities.

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