

The Reality of Digital Pedagogy at the Algerian University in Light of the Corona Epidemic (Covid 19).

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Abstract: This research study aims to highlight and give a clear picture of the most important consequences of the coronavirus crisis on the higher education system in Algeria, and what are the most important obstacles facing digital pedagogy in Algeria, especially after the decision of most university educational institutions in the countries of the world to switch to e-learning system, as a holistic alternative to The study relied on the data of health variables, educational and educational variables in Algeria, in addition to data of international and Arab technical and technological indicators, and the study found that the corona epidemic has a strong and sharp impact on the university educational system in our country, and that the application of digital pedagogy is subject to many obstacles (administrative, educational, technical). The corona crisis has provided a real opportunity to recognize these challenges and problems, to think about radical reforms, to adopt new strategies to expand digital education and to view it as a future and strategic option for teaching and learning, not just a means used only in crises and disasters.

Key Words: Coronavirus, Digital pedagogy, University, Information technology.

ملخص:

تتم هذه الدراسة البحثية إلى إبراز وإعطاء صورة واضحة عن أهم تداعيات أزمة فيروس كورونا على نظام التعليم العالي في الجزائر، وما هي أهم المعوقات التي تواجه البيداغوجية الرقمية في الجزائر، وخصوصاً بعد اتخاذ جل المؤسسات التعليمية الجامعية في دول العالم قراراً اضطرارياً بالتحول إلى نظام التعلم الإلكتروني، كبدائل كلي لضمان استمرارية العملية التعليمية في ظل إجراءات العزل الصحي الإجباري والتباعد الاجتماعي لاحتواء تفشي الوباء، اعتمدت الدراسة على بيانات المتغيرات الصحية، والمتغيرات التربوية والتعليمية في الجزائر، بالإضافة إلى بيانات للمؤشرات تقنية وتكنولوجية عالمية وعربية، وتوصلت الدراسة إلى أن لوباء كورونا تأثير قوي وحاد على المنظومة التعليمية الجامعية في بلادنا، وأن تطبيق البيداغوجيا

الرقمية تعترضه العديد من المعوقات، وقد أتاحت أزمة كورونا فرصة حقيقية للاعتراف بهذه التحديات والمشكلات، والتفكير في إجراء إصلاحات جذرية، واعتماد استراتيجيات جديدة بهدف التوسع في التعليم الرقمي والنظر إليه بوصفه خياراً مستقبلياً وإستراتيجياً للتعليم والتعلم، وليس مجرد وسيلة تستخدم فقط عند الأزمات والكوارث.

كلمات المفتاحية: فيروس كورونا، البيداغوجيا الرقمية، الجامعة، تكنولوجيا المعلومات.

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Introduction:

The significant scientific and economic progress witnessed by the world in recent decades, especially the technological revolution, which resulted in the emergence of computer and multimedia technologies, the world wide web and their integration, as well as the development of communication technologies, played a major role in the emergence of electronic or digital pedagogy. The concept of digital or electronic pedagogy refers to a set of values, ethics, and principles that regulate the use of the digital world, and provide protection to the younger generation from its many risks by educating them about its ethics and instilling them within them through educational programming that turns them from external control by the teacher to internal self-control that gives them constant protection and monitoring.

The use of modern digital technology in education at various levels has become an important and necessary demand, especially after the major health crisis witnessed by the world, namely the outbreak of the COVID-19 pandemic. This virus has shaken the internal security of most countries in the world, threatened the global economy and various vital sectors of countries. In the face of this major dilemma, Algeria, like other developing countries, seeks through new educational reform policies to support the idea of using the digital world in all levels of Algerian education, especially higher education. However, these reforms remain surrounded by a set of obstacles and challenges that make it difficult to integrate digital technology into the higher education sector. The problem of digital pedagogy in Algeria lies in the motivation to develop and renew educational work and move towards social and professional progress in educational practices and teaching, versus the attractiveness of conservatism and adherence to traditional work among workers in the Algerian higher education sector, which represents their administrative philosophy and thinking style in the field of university educational management. In addition, the current functional barriers in the Algerian university education system are also a challenge.

Through this proposition, the following research question can be formulated:
What is the reality of digital pedagogy in Algerian universities in the context of

the COVID-19 pandemic? And to fully address the research question, it is supported by the following sub-questions:

1. What are the implications of the COVID-19 pandemic on higher education in Algeria?
2. What is the role of digital media in university education pedagogy?
3. What are the obstacles that hinder the implementation of digital pedagogy in Algerian higher education?

I. Study methodology:

1.1. Study Hypotheses:

We started our research with a set of hypotheses, which are:

- The COVID-19 virus has significant implications on the higher education sector in Algeria.
- Technology-mediated learning plays a significant and effective role in higher education pedagogy.
- There are several obstacles and barriers that hinder the optimal implementation of digital pedagogy in the higher education sector.

1.2. Objectives and dimensions of the research:

The study aims to achieve the following:

- To obtain accurate scientific results that benefit researchers, shed light on the negative effects of the COVID-19 pandemic on higher education in Algeria, and examine the societal awareness and cultural behavior that enhance the government's role in fighting this global pandemic that has affected all countries of the world.
- To identify the various challenges and obstacles facing the implementation of digital pedagogy in the Algerian higher education sector.
- To examine the Algerian government's direction towards reforming the educational system and achieving the digital pedagogy project.
- The study seeks to provide some recommendations regarding the research topic, which is considered one of the urgent issues during these difficult times in our country.

1.3 The importance of this research:

This study lies in its focus on one of the most contemporary and pressing issues facing the world, which is the COVID-19 pandemic. This crisis has added new and serious challenges to the many challenges and problems facing the higher education sector in many countries, especially in developing countries like Algeria. The study also addresses the role of digital pedagogy, which emerged as a result of the rapid qualitative development of communication and information technology and the widespread use of the Internet and the World Wide Web. The significance of this study can be summarized in the following points:

- The efforts of the Algerian government to prepare a strategic plan for the application of digital pedagogy in the educational sector at all levels;
- The results of the study may help to highlight the most significant consequences of the COVID-19 pandemic on higher education in Algeria, as well as the obstacles facing the implementation of digital pedagogy in Algerian universities. Additionally, the study may help identify various weaknesses in the Algerian educational environment that hinder the development and support of digital pedagogy.

1.4 Study Dimensions:

Regarding the dimensions of the study, they are embodied in three main dimensions, which are:

- A. Educational Dimension: It is possible to employ digital technology in university educational institutions in a wise manner that allows them to obtain maximum benefit from what is available to them.
- B. Pedagogical Dimension: It includes knowing the quality of pedagogical tools used according to available resources.
- C. Legal Dimension: Developing a digital law that is suitable for our Algerian-Arabic environment, ethical rules for digital transactions, and establishing value standards for the use and employment of technology in our university educational institutions. In fact, it must be included among the most important accreditation and quality standards for those educational institutions.

1.5 The methodology of the study:

The study methodology adopted an inductive approach, which revolves around observing the reality of the COVID-19 pandemic and its impact on the situation of university education in Algeria. The study also took into account the efforts made by the Algerian state in developing quick plans and strategies in this field to confront this serious pandemic and minimize its negative effects. In addition, the study used a descriptive-analytical methodology, which is suitable for this type of research and helpful in understanding the problem. This included collecting the necessary scientific knowledge through desk research or online resources about the reality of digital pedagogy, its importance, and obstacles in Algeria, followed by analyzing this information using up-to-date statistics.

1.6 Study limitations:

The study limitations were as follows:

- A. **Time frame:** It covered the period of the spread of the coronavirus in Algeria from the beginning of March 2020 to September 15, 2020.
- B. **Spatial boundaries:** All countries of the world affected by the spread of the coronavirus, including Algeria.
- C. **Study population:** The College of Humanities and Social Sciences at Tahri Mohammed University of Bechar in Algeria.

1.7 Study procedures:

The researcher carried out the following procedures:

- Referencing educational literature and utilizing it in preparing the study.
- Collecting data related to the Faculty of Humanities and Social Sciences for four consecutive weeks since the beginning of the pandemic in Algeria.
- Analyzing the data and identifying problems related to the use of virtual classes during the pandemic.
- Developing a plan for addressing the difficulties facing e-learning through the use of virtual classes.
- Proposing some recommendations that may benefit those responsible for the educational process in dealing with difficulties resulting from emergency situations.

1.8 Study Terminology:

1.8.1 COVID-19: It is an infectious disease caused by a novel virus from the coronavirus family, known as the new coronavirus, also referred to as (COVID_19). It is a type of virus that causes respiratory illness, which may lead to inflammation, accumulation of mucus and fluids in the airway, and in the lungs (pneumonia) (1). There are many different coronaviruses, and most of these viruses affect only animals, but sometimes these viruses can change and infect humans.

1.8.2 Concept of Pedagogy: Linguistically, the term pedagogy is absent in language dictionaries, and some Arabs prefer to use the concept of education instead (Nawar, 1989: 23-35). The French dictionary, Larousse, defines pedagogy as follows: "Its origin is Greek, and it comes from the Greek word (Paidagogia), which means the theory of educating children, the attribute of the pedagogue, and the method of teaching, for example, the use of new pedagogy entirely" (Larousse, 1991: 721).

A- The Conceptual Meaning: Pedagogy is a technique for education and, at the same time, a science and an art. It is a science because it must have a specific data foundation, and it is an art in the application that the educator or pedagogue performs. This art is established in the pattern of action that the educator practices on the child and in the way of evaluating the data that will be acquired through teaching (Ben Ghedhbane, 1999: 17).

B- The Procedural Meaning: Pedagogy is an educational science, whether it is physical, mental, or ethical, and it benefits from the data of other fields of knowledge that focus on the child and the adolescent. It also works on collecting facts about curricula, techniques, and educational phenomena.

1.8.3 Concept of Digital Pedagogy: Digital pedagogy represents a program that rewrites educational content in lessons taught in educational institutions or in online workshops. Digital pedagogy is based on using technology in the learning process and creating a digital environment for students to facilitate the acquisition of knowledge and skills.

1.9 The Theoretical Framework:

The COVID-19 pandemic began to spread in our country in early March 2020, which is the second month of the second semester of the academic year: 2019-2020. Suddenly and without prior notice, a comprehensive closure of all educational institutions was announced. Therefore, it was necessary for the Faculty of Humanities and Social Sciences at Bechar University to take all necessary measures to complete the educational process by utilizing the digital transformation in education and the opportunities it provided to overcome the paralysis caused by the COVID-19 pandemic in the educational process.

Here, we will talk about the experience of the Faculty of Middle Eastern Studies at Bechar University in confronting this pandemic and the means and methods that were used to complete the educational process and how it benefited from the digital transformation in education.

1.10 Study Axes:

For the purpose of comprehensive coverage of the topic and reaching relevant conclusions, the article was divided into the following axes:

- ❖ **First axis:** Technological media and pedagogy of Algerian university education in light of the Covid-19 pandemic.
- ❖ **Second axis:** Challenges of digital education in Algerian universities.

2. Technological media and pedagogy of Algerian higher education in light of the Coronavirus pandemic.

2.1 The Coronavirus virus and its repercussions on aspects of life in Algeria:

Coronaviruses are a broad strain of dangerous viruses that cause disease in humans and affect them with many respiratory diseases, including the common cold and severe acute respiratory syndrome known as SARS. They have also caused the emergence of the COVID-19 virus. This virus appeared in the Chinese city of Wuhan in December 2019, when there was no knowledge of the spread of this new virus before its outbreak. It has now become a pandemic that has affected all countries of the world without exception, according to the World Health Organization. This virus spreads very rapidly among the elderly and people with chronic diseases. As a result of this serious situation, all countries of the world have taken urgent measures, including declaring a state of emergency and imposing curfews to reduce its spread.

Algeria, like other countries of the world, has also witnessed a large outbreak of this pandemic, where it has spread throughout the country and claimed many victims and injured people. This has led the Algerian government to adopt a set of precautionary and preventive measures, such as imposing a home quarantine on all people, reducing the number of individuals working in all sectors of the state, including economic and administrative sectors (public administrations, factories, ports, airports, etc.), suspending education at all levels, closing schools and universities, clubs and recreational places, banning land, sea and air travel, reducing commercial activity, and other measures to reduce interaction among individuals and limit the spread of this dangerous pandemic.

2.2 Coronavirus Crisis on Higher Education Sector in Algeria:

The Algerian Ministry of Higher Education and Scientific Research has implemented precautionary measures to ensure the continuity of remote learning in case of further cases of the coronavirus in Algeria. The process started on March 15, 2020. A memorandum issued by the Minister of Higher Education and Scientific Research to the regional seminar presidents of universities and university directors revealed an educational initiative developed by the sector to curb the potential spread of the coronavirus. This initiative aims to establish a platform that ensures students' continued receipt of remote learning for at least three (03) months. The memorandum acknowledged the exceptional circumstances caused by the world's obvious spread of the global pandemic, requiring the ministry to take educational initiatives by resorting to preventive measures to ensure continuity of education. The content of this initiative includes Reference: No. 288 /A.Kh.W/2020, dated February 29, 2020, which focuses on preventive measures. University directors and scientific council presidents were urged to sensitize and mobilize their colleagues, the professors, to participate in this educational process.

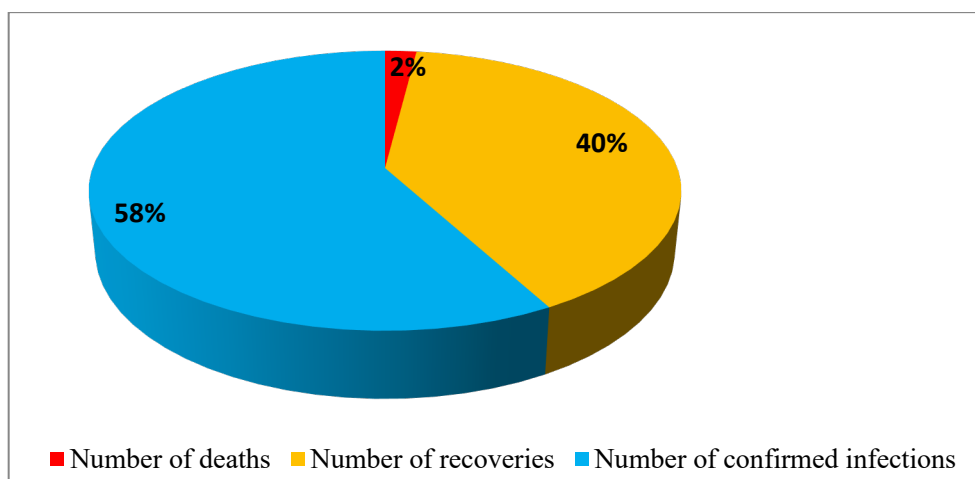
The process of remote learning, also known as digital pedagogy, adopted by public authorities to help curb the spread of the coronavirus COVID-19, requires some conditions such as high internet flow to achieve full responsiveness of professors and students to this type of education. Under the general quarantine imposed on the country to limit the pandemic's spread, most universities and university centers activated remote learning immediately after receiving the Ministry of Higher Education and Scientific Research's letter in early March 2020. The universities monitored the implementation of this decision through courses for all years and specializations, including lectures and practical work to enable students to follow their lessons through YouTube videos (Boukhedouni, 2020: 67-68).

Table No. 01: Includes the number of coronavirus infections in Algeria (from 03/01/2020 to 09/15/2020).

Area	Population	Number of confirmed infections	Number of recoveries	Number of deaths
2.382.000 KM ²	43.9 million people	45.469	32.006	1.531

- **Source:** Ministry of Health (Corona Virus Follow-up Cell in Algeria), (<http://covid19.sante.gov.dz/carte>).

Figure No. 01: Includes the number of coronavirus infections in Algeria (from 03/01/2020 to 09/15/2020).



- **Source:** Ministry of Health (Corona Virus Follow-up Cell in Algeria), (<http://covid19.sante.gov.dz/carte>).

2.3 Digital Pedagogy in Algerian Higher Education:

Algeria is among the countries affected by the novel virus, and as a result, it has taken preventive measures and precautions, which came in accordance with a set of executive decrees to avoid the spread of the pandemic among people. It also approved social distancing measures to avoid physical contact among citizens in public places, especially in universities and university centers. Due to the implementation of social distancing measures and the reduction of direct meetings and gatherings, it has become necessary to rely on digitization for effectiveness and efficiency, and Algeria finds itself obliged to rely on digitalization.

The Algerian university found itself forced to adopt a new model of education known as e-learning, after the lifting of the health quarantine due to the Corona pandemic. The classic departments were transformed into the digital space through the use of specific applications. However, many challenges are imposed on the digital transformation of the university institution, which makes oversight necessary to take into account, since reality indicates that economic efficiency must be built on digital knowledge.

The Algerian university has faced a real challenge, which lies in the necessity of keeping up with the modernization trends, particularly digitalization, given the significant development of information and communication technologies. Despite the great efforts made by the state to promote the university, such as providing some digital platforms to facilitate the digital transformation process, such as the Progress platform, Modem, and E-learning, they have pointed out that the Algerian university is lagging behind in keeping up with the digital transformation. They attributed the credit for reactivating the institution's digitalization initiatives, and accelerating their pace, to the coronavirus pandemic, to remedy the delay in ensuring its continuity, even if remotely, to ensure the continuity of its activities. The higher education sector is considered one of the most affected sectors directly as a result of this pandemic, especially in Algeria. This has encouraged the ministry to call on faculty members

to participate in recording lessons online and downloading them from platforms by students.

2.4 Foundations and principles of digital pedagogy:

As explained by Al-Khatib (1998:12), they are:

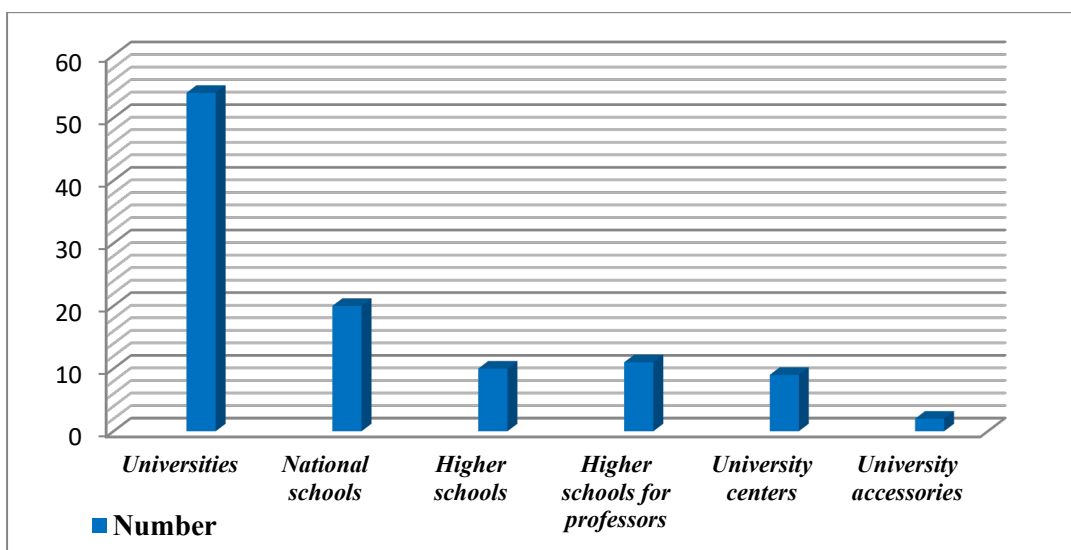
- 1) **Accessibility:** This means that educational opportunities in higher education are available to everyone, regardless of any temporal, spatial, or objective obstacles.
- 2) **Flexibility:** This means overcoming all barriers that arise due to the system or those in charge of it, and this principle has been handled with great caution in most contemporary distance learning programs.
- 3) **Learning control:** This means that students can arrange different curriculum topics according to their circumstances and abilities, and choose their evaluation methods.
- 4) **Choice of delivery system:** This means the individual learner's choice of scientific delivery systems according to the method that suits them, such as mail, computers, software, antennas, meetings, and others. However, this feature is taken with extreme caution in most contemporary distance learning programs.
- 5) **Accreditation:** This refers to the suitability of the study programs and their degrees for the intended purposes compared to others, while at the same time recognizing these programs, their mechanisms, and the accountability of their content in different institutions.

Table No. 02: Shows the number of university structures in Algeria (year 2020).

University structures	Universities	National schools	Higher schools	Higher schools for professors	University Centers	University Accessories	Total
Number	54	20	10	11	09	02	108
Percentages (%)	50	18.59	9.25	10.18	8.33	1.85	100

- **Source:** Ministry of Higher Education and Scientific Research - General Directorate of Higher Education and Training - Algeria - (year 2020).

Figure No. 02: Shows the number of university structures in Algeria (year 2020).



- **Source:** Ministry of Higher Education and Scientific Research - General Directorate of Higher Education and Training - Algeria - (year 2020).

2.5 Objectives and Goals of Digital Pedagogy:

The primary aim of digital pedagogy is to achieve the following objectives:

1. To renew the content of university teaching programs, rewrite them in multimedia format, and have the ability to meet the cognitive and scientific needs and desires of learners.
2. To improve and develop the process of retaining knowledge and information acquired, accessing them in a timely manner, renewing them quickly, and organizing them according to their importance, as well as their real-life situations.
3. To encourage students to work collaboratively and engage in interdisciplinary cooperation.
4. To enhance pedagogical performance through new carriers and achieve minimum coherence of educational content within the same specialty.
5. To develop and foster interaction between the teacher and the student, who are considered the two parties in the educational process (Alwasat, 2021).

2.6 Digital Pedagogical Media in Algerian Higher Education:

Modern technological means have had an impact on updating learning methods in higher education institutions and their patterns, becoming an element in developing the educational process and elevating it. They have allowed university professors to innovate new methods and diverse media, and provided learners with more avenues for learning and self-reliance. This can be summarized as follows:

2.6.1 Educational Bag: One of the modern trends in the process of learning and education is the use of more than one medium in presenting educational material. The educational bag is a "collection of widely programmed materials that can

provide each learner with alternatives by following a meaningful path and guiding them towards achieving goals. Interaction between the educational material and the student is through answering some questions or conducting an experiment, watching a film, or any other activity.

2.6.2 E-Learning: This concept is linked to the use of computer networks and modern means of communication, especially the Internet, smartphones, and others. It is capable of providing a rich and multi-source educational environment and provides access to learning according to the personal needs of the learner. It requires computer labs connected to the Internet with the required speed and qualified human resources.

2.6.3 Multimedia: It is a system that helps the learner and provides him with a greater degree of freedom in dealing with the educational material. It is defined as "a type of software that provides the learner with various forms of presentation technology mechanisms through programs that produce written text, graphics, sound, color, video clips, and animations (El Mahi, 2006: 121).

2.6.4 Hypermedia: This is a modern technology that has been introduced in educational beauty, where it provides the learner with an integrated educational model that contains shapes, graphs, moving images, color, sound, and text that are managed by the computer. It is an educational strategy used to transfer information and present it linearly while utilizing the learner's sensory inputs. (Boutalebi, 2014: 128).

2.6.5 Learning by email: It is a means of communication between individuals where messages and documents are exchanged over the internet. It is characterized by its high speed and ensures the delivery of information. It is low-cost, easy to handle, flexible, and there are no administrative barriers between the sender and the receiver. It is used in education to update classroom teaching and is easy to employ for students.

2.6.6 Learning through the Internet, the information network, and social networking sites: This is considered one of the most complex technologies of the 20th century. It is a computer network consisting of a collection of information technology equipment and computers connected locally and globally to form the World Wide Web. It provides diverse information such as e-books, journals, databases, educational websites, and direct communication with people and organizations through audiovisual conferences and text messages.

2.6.7 Learning by video tutorial: This is a method that combines computers and video to provide high-quality audiovisual presentation that allows learners to interact, acquire information, and gain experience according to their personal needs and abilities. It differs from multimedia in that it displays segmented video clips, each on a separate screen, and provides opportunities for interaction that give the learner the ability to control their own learning.

3. Challenges of Digital Education in Algerian Universities:

3.1 Technical Challenges:

One of the biggest challenges facing e-learning is the limited capacity of educational institutions to create wide networks and provide large numbers of devices and support. In addition, updating these technologies, especially as information and communication technologies undergo multiple and rapid developments and transformations, has made it difficult to acquire different technologies. Regarding software, the lack of electronic learning applications in the Arabic language has posed a major challenge, in addition to their multiplicity and the need for uniformity among them, which impedes the selection of appropriate programming. Therefore, the relevant ministries, especially the ministries of education and communication, and information technology, must coordinate to produce local software that takes into account the various characteristics of education and learners.

3.2 Legislative Environment:

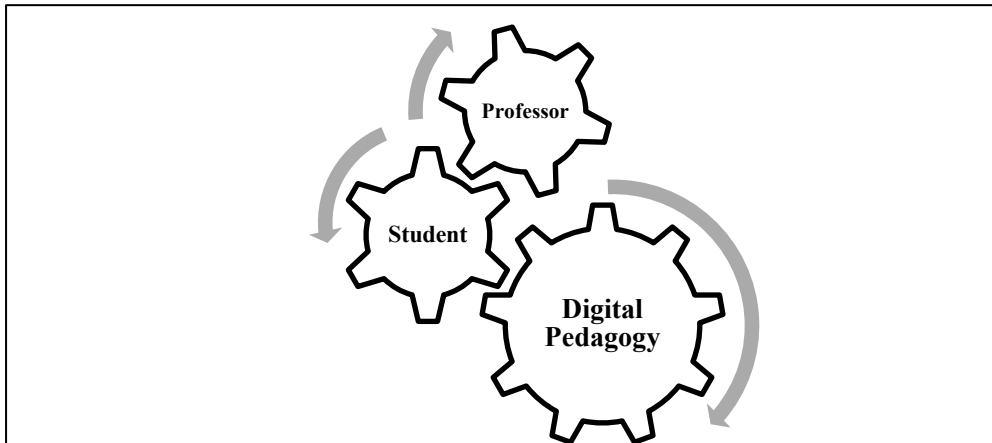
To ensure the smooth transition to the e-learning system, laws and regulations must be adapted to ensure the dynamism of the education system and keep up with fast-paced modern developments. The laws must provide the necessary cover to protect freedom of thought, acquisition of knowledge, and, most importantly, their generation, which requires the modification of some laws that hinder electronic interaction.

3.3 Human Resources:

The movement towards e-learning poses a challenge for many teachers who are accustomed to the traditional system, and thus this trend will face resistance against this system. Therefore, a policy of awareness, motivation, and firmness must be implemented to accept this change.

3.4 Financing:

Investment in the field of education is one of the areas that do not attract companies and investors for investment. Thus, the lack of funding for this sector, in addition to the cost of operation, maintenance, renewal, and the cost of producing the necessary content for the educational process, poses a real challenge. Therefore, governments should give special priority to this field by encouraging partnerships and supporting projects through the activation of relationships and the expansion of partnerships between the telecommunications and information technology sector and the education sector to support and develop e-learning systems.



Source: Prepared by the researcher

❖ Recommendations and suggestions:

Through our humble article, we can suggest the following recommendations that would improve the implementation process of digital pedagogy in Algeria:

1. The necessity to provide electronic computer devices in all university educational institutions to be used in the educational process instead of manual work.
2. The involvement of educational specialists in the development of this type of education, which requires innovative websites and integrated and continuous online content.
3. Training university staff, including professors and researchers, on the use of computer devices in their work.
4. Allocating a financial budget for training and qualifying workers on electronic programs.
5. Utilizing computer engineers and experts in the field of information security to develop internal communication programs and networks for each university institution and creating a protected database for the education sector.
6. Supporting citizens, especially students from poor and disadvantaged families, in acquiring computer devices and reducing internet prices to make it affordable for everyone, which creates electronic awareness among citizens and forms what is known as the electronic community.
7. The Arab countries, including Algeria, are to intensify their efforts to create a purely Arabic digital pedagogy that includes unified curricula and educational programs at the university level to confront the dangers of globalization. Education in the Arab world is facing real challenges including globalization, foreign cultural invasion, and rapid successive developments in the world of communication and information. Therefore, it must confront these challenges

with modern weapons, and thus efforts must be combined at the national level to formulate a comprehensive unified Arab strategy.

Conclusion:

Although the use of digital pedagogy in higher education is still in its early stages in Algeria and most Arab countries compared to Western countries that were pioneers in adopting the idea of using this type of education, its goal is to develop educational services and improve them in a way that meets the aspirations of its citizens and according to their changing needs. The crisis of COVID-19 in Algeria has provided a real opportunity to recognize these challenges and problems, and to think about applying smart methodologies and strategies and accepting new patterns of education and learning that do not primarily rely on physical existence but also use modern digital technologies in interaction and communication. In this regard, many experts emphasize the importance of expanding electronic or virtual education and considering it as a future option and a strategic choice for education and learning, rather than just a means used only during crises and disasters.

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