

## **Digitization and Distance Learning at the University and Their Impact on the Student's Educational Success: The Case of Houari Boumediene University, Faculty of Computer Science**

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### **Abstract:**

The world is currently witnessing a Fourth Industrial Revolution, during which the concept of digitization has garnered increasing attention as a new development with a significant impact on daily life in society. In general, this research aims to study the effects of digitization on services within Algerian universities. Numerous Arab and Western studies have addressed the topic of digitization and distance learning in universities, linking it to various variables. However, we have chosen to examine this subject in relation to a particularly important variable: the university professor and their active role in ensuring the success of distance learning. The university can be seen as a living model of service-oriented activity in Algeria. For this study, we selected the University of Bab Ezzouar – Houari Boumediene, Faculty of Computer Science, as a case study. Based on literature and previous findings, this study seeks to shed light specifically on the impact and vital role played by university professors in the success of this educational initiative, while also identifying the main weaknesses that could potentially lead to the failure of distance education. This article aims to explore the aspects of digitization in higher education, the challenges of distance learning in Algeria, and the key mechanisms of digitization in higher education. The article adopts a descriptive and analytical methodology based on reviewing theoretical literature. The findings reveal that the use of digital platforms for distance learning in Algeria has become an essential part of the country's strategy to improve education. These platforms have contributed to a distinctive and student-friendly learning experience, enhancing students' academic performance.

**Keywords:** Digitization, Distance Learning, Algerian University, Higher Education, University Professors

### **Introduction:**

Technological and technical advancement is considered the primary driving force for nations around the world, relied upon across various fields to ensure the success of development projects—particularly in the social and economic domains—to achieve national or even regional power. Algeria is among the countries that have placed significant emphasis on this field by striving to develop its digital and technological sectors, alongside a digital transformation that encompasses all members of Algerian society. This has become one of the nation's top priorities. Among the sectors that have benefited from this decision is the higher education and scientific research sector, due to its close connection to the scientific and technical fields—especially in terms of preparing research activities and facilitating the learning process for both professors and students. This, in turn, aims to enhance the quality of pedagogy and ease communication among social actors within the higher education sector and its various institutions, in order to achieve set goals and maintain a smooth workflow that improves overall efficiency.

The first emergence of distance learning was through correspondence education, where the medium used was postal services, which facilitated the transfer of printed or written educational materials between the teacher and the learner. This was followed by the introduction of radio broadcasting and the use of radio in education. With the advancement of electrical and electronic industries, the importance of audio technologies in this field grew, particularly through recording devices. Later, television appeared, followed by video. The significance of audio-visual educational broadcasting increased further with the widespread use of satellites. With the spread of personal computers and computer networks, computer-based applications—especially those involving interactivity—became central to distance learning. As modern technology continued to develop, the scope of distance learning expanded to include a wide range of computer applications and modern communication tools such as satellites and the Internet. Today, computer-based applications are among the most important and effective means of distance learning, especially in the field of self-directed learning. They are also among the key methods for delivering study content, images, movements or skills, and sensory experiences using various techniques. These communication methods can, at times, replicate what even the most skilled teachers provide in traditional classroom settings. Moreover, satellites now allow for telephone communication and the transmission of audio-visual broadcasts to remote locations or environments without the need for costly terrestrial infrastructure networks.

Today, we are examining the use of technology in the process of distance learning as a means to save time and reduce costs. While this may seem like an easy task in theory, implementing distance learning using modern technologies and communication tools requires both students and teachers to possess the necessary experience, open-mindedness toward these technologies, and a genuine willingness to embrace positive change. This does not imply eliminating the teacher's role—on the contrary, their role becomes even more important and more challenging. The teacher becomes a creative individual with high competence, capable of managing the educational process effectively and working toward achieving progress and technological advancement. The teaching profession has evolved into a blend of

leadership, research project management, critical thinking, and guidance. For a teacher's role to be truly effective, they must combine specialization with experience. This study aims to highlight the weaknesses and challenges faced by university professors in the teaching process in order to offer higher education grounded in the best models of e-learning applications and technologies. It also seeks to transfer and localize leading knowledge in collaboration with other Algerian universities, using high-quality educational content sourced from various global platforms and adapted to suit Algerian society. In addition, the study explores the extent to which students accept these programs, with the goal of minimizing errors that could lead to failure in the teaching process on digital platforms.

Distance training has become one of the key variables in the university's strategy today, especially considering that the university professor serves as the main driving force behind the institution's activities and momentum. At the same time, the behavior of the student represents the foundational unit upon which the university's policy is built. Any attempt to understand individual behavior within the university must therefore be based on a comprehensive and precise understanding of the reciprocal influence between two elements: on one hand, the personal characteristics of the individuals—both students and professors—including their abilities, experiences, motivations, behavior patterns, attitudes, and values; and on the other hand, the functional characteristics of the university and the influence the institution exerts in shaping and guiding individual behavior.

The numerous technological and communication advancements witnessed during the twentieth century have greatly contributed to the progress of educational and pedagogical fields. Due to the significant increase in the global population and the difficulty in providing learning opportunities for everyone—along with the fact that many individuals have missed their chance to access education—new methods and approaches to learning have emerged to quickly meet these growing needs. From this context, and in support of the principle of "Education for All," the system of distance education was born.

The aim of distance training is to address the shortcomings left by traditional education, whether due to quality, geographical distance, poverty, or lack of resources. However, the foundational issues or the structure of education, along with the general characteristics of its context in developing countries, can lead to distorted or low-quality forms of distance learning if not planned with sufficient knowledge and prior experience, and without adequate resources and infrastructure. Furthermore, the uncalculated expansion in the use of multiple educational channels can exacerbate difficulties in efficiently organizing and managing the educational system. Therefore, the successful investment in information technology and modern communication tools in distance learning becomes crucial.

In this context, the Algerian university adopted the experience of the University of Bab Ezzouar – Houari Boumediene as one of the pioneering models of distance learning in Algeria. If we were to assume that distance learning is less effective than in-person education, this would contradict the achievements made by the Faculty of Computer Science at Bab Ezzouar through its implementation of distance education. The results observed at the University of Bab Ezzouar suggest that distance learning has yielded positive outcomes, as evidenced by the graduation of several cohorts. This allows us to conclude that it is

progressing on the path to success. At this point, we are prompted to ask about the active role played by the university professor in ensuring the success of this distance education. Accordingly, we pose the following question: What role does the professor, as a member of the distance learning team, play in ensuring the success of distance education for students?

In light of the above, this study is based on a general hypothesis that the professor who is part of the distance learning team plays a pivotal role in the success of the distance teaching process through active involvement in its various stages. This general hypothesis branches into three sub-hypotheses, the first of which is that the professor demonstrates significant proficiency in using the digital teaching platform, which enhances the effectiveness of distance learning and contributes to achieving its objectives. The second hypothesis assumes that the professor employs teaching methods that take into account individual differences among students in terms of intelligence, interests, abilities, and readiness, which helps facilitate learning and achieve positive outcomes. Meanwhile, the third hypothesis suggests that the professor, in coordination with the administrative team at the University of Bab Ezzouar (as a model), works on designing educational programs characterized by efficiency and flexibility. This contributes to reducing the time, effort, and cost for students, thereby enhancing their engagement and participation and achieving the intended educational goals.

## 1- Theoretical Aspect of the Topic

**1.1 Digitization:** The higher education and scientific research sector was digitized as part of what is known as the "Algeria e-Strategy" in the year 2013. This strategy aims to improve the capacities of education, scientific research, and innovation, as well as to establish industrial groups in the field of information and communication technology. It also seeks to enhance the quality of life for citizens by promoting the dissemination and use of digital technologies and electronic devices. (Ministry of Post and Information and Communication Technologies, *Algeria e-Strategy*, 2013). It is the process of converting data into a digital form in order to be processed by a computer. (Said Yaktine, 2005, p. 25)

**1-2- The Concept of Distance Education:** The term "distance education" was not officially recognized until recently, specifically in 1982, when UNESCO attempted to reinterpret the name of the International Council for Correspondence Education (ICCE) by giving it a new title: the International Council for Distance Education (ICDE). ('Amer, Tareq Abdul-Raouf, 2007, p. 17). Thus, the concept of distance education is considered a relatively new one, and there is still no fixed or universally agreed-upon definition for it. As a result, multiple interpretations and definitions of distance education have emerged. Some of the most important include:

'Amer (2007) cites Rontree's definition of distance education as: "Education that occurs when there is a separation between the learner and the instructor. It is usually carried out with the help of pre-prepared educational materials, and the learners are separated from their instructors in time, place, or both."

'Amer (2007) also cites Peters' definition of distance education as:

"A method for producing high-quality educational materials that can be used in the learning

process, enabling learners to acquire knowledge from wherever they are."

(‘Amer, Tareq Abdul-Raouf, 2007, p. 18)

The previous definitions all agree that distance education is a form of learning that occurs across a certain physical separation from the learner and is influenced by factors of time and place. However, differences arise in the use of the term "distance education" due to the variety of dimensions and contexts in which it is applied, as its meanings and areas of application vary depending on several factors. On one hand, its usage differs when describing certain teaching methods or learning approaches—it may refer to self-directed learning, interactive learning, blended learning, or even fully technology-based learning. Differences also emerge when describing the educational process itself, whether in terms of the media used or the roles of both the teacher and the learner.

Additionally, the meanings of the term vary depending on the administration or entity that uses it. Different educational institutions or educational authorities may adopt diverse definitions and approaches based on their goals and educational strategies. National particularities also play a significant role in shaping the content of this concept, as countries' approaches to the term "distance education" differ according to their economic, technological, and social priorities. Finally, the use of this term is also linked to the nature of the educational system itself, in terms of its philosophy, goals, and performance, which makes its meanings change and multiply depending on the contexts in which it is used. (Ibrahim bin Abdullah Al-Muhsin, 2008, p. 67)

It is also defined by Dr. Abdullah bin Abdulaziz Al-Mousa, Dean of the College of Computer and Information Sciences at Imam University, who says the following: "Electronic education is a method of learning using modern communication technologies such as computers, networks, and various media including sound, images, graphics, search mechanisms, and electronic libraries, as well as internet gateways, whether it is done remotely or in the classroom. The important point is the use of technology in all its forms to deliver information to the learner in the shortest time, with the least effort, and the greatest benefit." (Al-Qahtani, Ibtisam bint Saeed bin Hassan, 2010, p. 12)

Thus, we can define distance learning at the University of Blida Master as an operational model as follows: It involves providing learners with knowledge, skills, and attitudes through self-learning using electronic or traditional communication media. This system generally means transferring learning to the learner at their place of residence or work, instead of having the learner move to the educational institution itself. Based on this, the learner can combine learning and work if they wish, and can adjust the curriculum and the pace of progress in the course to match their personal circumstances and conditions.

• **The historical development of distance education has passed through four generations, which are:**

**-First Generation:** Correspondence systems at the end of the 19th century, relying on printed materials and accompanying instructions, including audiovisual aids. Regular mail was the means of communication between the teacher and the learner.

**-Second Generation:** Educational television and radio systems that use multiple technologies such as satellites and space stations as communication tools to deliver live or recorded lectures.

**-Third Generation:** Multimedia systems that include texts, sounds, video tapes, and computer materials.

**-Fourth Generation:** Internet-based systems, where educational materials include multimedia electronically transmitted to individuals via computers. These systems allow access to electronic libraries, and communication between the teacher and the learner occurs either synchronously through video conferences or asynchronously using email and discussion forums. (Amer, Tarek Abdel-Raouf, 2007, p. 31)

• **The Importance of Distance Education:** The importance of distance education is evident in several key aspects driven by the rapid changes in the global and economic environment, which have increased the need for continuous learning to keep up with the demands of the modern age. This mode of education is considered an effective way to utilize individuals' free time, especially for working professionals, by enabling them to continue learning without the need to interrupt their work or be tied to specific time or location.

Distance education also provides learners with the opportunity to follow the curriculum at a pace that suits their individual abilities, unlike traditional education, which imposes a uniform pace on all students. One of its most notable advantages is also providing equal educational opportunities to all individuals, regardless of their geographical or social conditions, which contributes to the democratization of education and the realization of the principle of equal opportunities.

Distance education enhances the possibility of exchanging knowledge, experiences, and expertise between individuals and institutions, thanks to the interactive, flexible, and easy-to-use tools provided by information and communication technology. It also contributes to improving the effectiveness of teachers by training them to use modern digital tools and developing their educational skills, which increases their expertise and qualifies them to handle the demands of contemporary education efficiently. (Kadour Ali, 2021, p. 753)

• **Institutions of Distance Education:**

**-Single-purpose institutions:** Their mission is limited to providing distance education, focusing on educational media, giving guidance, conducting assessments, issuing certificates, and managing research projects.

**-Dual-purpose institutions (Traditional):** They offer both formal education and distance education simultaneously, rely on technology, and do not have teaching staff. However, they cannot cover a large number of people or even all areas of a single country.

**-Traditional institutions:** They provide some distance learning courses without having a dedicated department for this field. There is a collaboration between several educational and training institutions to offer distance education services.

**-Networks:** These organize materials provided by other educational institutions, designing programs for education that are either sold or borrowed by other institutions or universities that carry out open education. (As'ad Abu Anab, 2009, p. 43)



• **Determining the Strategic Dimension of the Importance of Digitization in Higher Education:** The strategic dimension of the importance of digitization in higher education is defined by the pivotal role that information and communication technology plays in developing the educational process, improving its quality, and effectively contributing to achieving sustainable development goals. This importance is especially evident in higher education institutions, which are now required to keep pace with rapid digital transformations to meet the demands of the era and enhance their academic and research efficiency.

Digitization provides a high-quality learning environment by creating specialized information banks that contribute to improving the quality of education, facilitating access to knowledge, and utilizing it for scientific research. This, in turn, enhances the opportunities to provide practical solutions to societal problems and contributes to advancing progress and cultural development.

Furthermore, digitization increases the effectiveness of the educational process. Numerous studies have confirmed that the appropriate use of information and communication technologies across various components of education leads to improved performance by both students and professors, enhancing the quality of the educational system's outcomes. This ultimately benefits society as a whole by developing competencies capable of keeping up with rapid changes.

On the other hand, digitization contributes to enabling universities to perform their tasks and achieve the strategic objectives outlined by the Algerian legislator, as per the second chapter of Executive Decree No. 03-279, which defines the tasks, organization, and management of universities. The adoption of technology in education enhances the university's ability to carry out its educational, scientific, and cultural functions, granting it flexibility and effectiveness in management and responding to current and future challenges. (Chelghoum Massari, 2020, pp. 152-151)

• **Key Advantages, Justifications, and Benefits of Distance Education:** We can summarize several advantages and benefits of distance education presented by Dr. Abdullah Al-Mousa in his book "E-Learning: Its Concept, Characteristics, Benefits, and Challenges":

-**Increased Connectivity Between Students and Between Students and the School:** This is achieved through easy communication between these parties in various directions, such as discussion forums, email, and chat rooms. Researchers believe that this increases and encourages students to participate and interact with the topics being discussed.

-**Contributing to Different Perspectives from Students:** Instant forums like discussion boards and chat rooms provide opportunities for exchanging viewpoints on the topics being presented. This increases the chances of benefiting from the opinions and suggestions offered, integrating them with the student's own views, which helps in building a solid foundation for the learner. Strong and sound knowledge and opinions are formed through the knowledge and skills acquired via chat rooms.

-**The Sense of Equality:** Since communication tools allow each student the opportunity to express their opinion at any time without hesitation, this contrasts with traditional classrooms, where students may be deprived of this opportunity due to poor seating arrangements, the student's own soft voice, shyness, or other reasons.

However, this type of education fully grants the student the chance, as they can send their opinion and voice through available communication tools such as email, discussion boards, and chat rooms. This feature is especially beneficial for students who feel fear and anxiety because this style of education allows them to express their ideas more boldly and search for truths more actively than if they were in a traditional classroom. Studies have shown that online discussions help and encourage students to engage more directly.

**-Ease of Access to the Teacher:** E-learning has greatly facilitated access to the teacher, enabling students to reach out to the teacher outside of official working hours. The trainee can now send their inquiries via email, which is more convenient for the teacher than being confined to their desk. This feature is particularly useful for those whose working hours conflict with the teacher's schedule or when there are urgent inquiries that cannot be delayed.

**-Ability to Modify Teaching Methods:** The student can receive the material in a way that suits them, whether they prefer visual, auditory, or reading methods. Some may find practical approaches more beneficial. E-learning and its resources allow for the application of materials in various ways, allowing customization according to the best method for the learner.

**-Suitability of Various Teaching Methods:** E-learning enables the learner to focus on important ideas while taking notes or compiling lectures or lessons. It also benefits students who have difficulty concentrating and organizing tasks, as the material is arranged and structured in an easy and clear manner, with key elements clearly outlined.

**-Availability of Curricula 24/7 (24 hours a day, 7 days a week):** This feature is useful for people with fluctuating moods or those who prefer to learn at specific times. Some students prefer learning in the morning, while others prefer the evening. It is also beneficial for those carrying personal responsibilities. This feature allows everyone to learn at a time that suits them.

**-Not Relying on Physical Presence:** In traditional education, the student had to adhere to a strict and fixed schedule, especially for group work. However, this is no longer necessary, as modern technology has provided methods of communication without the need to be in a specific place or time. Therefore, coordination is no longer as critical as it used to be, and it no longer causes inconvenience.

**-Ease and Variety of Assessment Methods for Student Progress:** Instant assessment tools offer the teacher a variety of methods to quickly and easily build, distribute, and classify information for evaluation.

**-Maximizing Time Efficiency:** The availability of time is crucial for both the teacher and the learner. The student has immediate access to information at any time and place, so there is no need to travel to the classroom, library, or professor's office. This saves time. Similarly, the teacher can preserve their time as they can send the required materials to the student via direct communication tools.

**-Reducing Administrative Burden for the Teacher:** E-learning enables teachers to reduce the administrative tasks that used to take a lot of time in every lesson, such as receiving assignments. E-learning has alleviated this burden, as all documents can now be sent and received electronically, with the added benefit of confirming that the student has received the materials. (Abdullah Al-Mousa, p.33)



• **Obstacles Facing Distance Learning:** Despite the multiple advantages that online distance learning offers, educational institutions still face many challenges in implementing e-learning across various sectors. One of the biggest obstacles is the genuine reluctance of many educators to embrace change. Some of these challenges can be observed in Arab countries:

- The underdevelopment of communication infrastructure in the Arab world.
- Lack of interest among Arab learners in using advanced technology, focusing only on obtaining a degree with minimal effort.
- Limited bandwidth availability in many Arab countries, which hinders the use of optical and video broadcasting technologies.
- Low prevalence of computer usage in many Arab nations.
- Limited technological awareness among a large portion of the population.

Despite the advantages of e-learning, the rush towards it may deprive students of essential skills they desperately need, such as listening, writing, peer interaction, speaking, dialogue, and discussion, among others. Therefore, carefully studying the content before preparing educational activities is crucial. It would be ideal if this is done by a specialized educational team in language and programming, deciding when the teacher should take students to the computer lab and when they should stay in the classroom to learn listening and dialogue skills directly from the teacher, using the same method their parents learned. This is not surprising, considering that listening skills make up the largest portion of the daily language activities people engage in.

**Some additional drawbacks include:**

- The lack of clarity in the style and objectives of this type of education for those responsible for educational processes.
- Technological illiteracy: which requires significant effort to train and prepare both teachers and students for this experience.
- The financial cost of purchasing necessary equipment, other supporting devices, and maintenance.
- Weakening the teacher's role as an important educational and instructional supervisor, and their direct connection with students, thus reducing their ability to have a direct impact.
- Weakening the role of the school as an important educational institution in society, with its crucial role in nurturing successive generations.

## **2- Methodological Procedures of the Research:**

The integrated sociological study is based on the necessity of linking and connecting the theoretical and field-based treatment of the study topic. This is done through the use of certain methodological procedures that align with the nature of the study's subject, its goals, and the reality in which the studied phenomenon exists.

### **2-1 The Approach Used in the Study:**

The scientific approach is considered the fundamental cornerstone of the study, especially in the social sciences, which requires the researcher to be precise in selecting the approach that suits the nature of the study topic. Louis Cohen defines the approach as: the

multiple methods and approaches that the researcher uses to collect the necessary data for their research, through which they reach results, explanations, or predictions. (Louis Cohen, 1990, p. 2).

The approach is one of the most important methods used by the researcher to study any problem or specific research topic, with the aim of reaching scientific facts, examining the phenomenon under study, and analyzing it scientifically and objectively. It is considered a set of general rules established to reach the truth in science. (Mohammed Al-Gharib Abdel Karim, 1996, p. 139).

After identifying the research problem, reviewing previous studies, and examining various research methodologies, we concluded that the most suitable approach for the current study is the descriptive-analytical approach. The purpose of using this approach is to conduct a quantitative and analytical analysis of the studied phenomenon. Through this approach, we aim for objectivity and accuracy by working with numbers and percentages, avoiding subjective judgments. This methodology also helps us gather quantitative data on the subject being studied.

**2-2- The study sample and how it was selected:** The sample is that portion of the research population from which data will be collected in the field of study to reach estimates that can be generalized to the entire original research population. In other words, it is that portion of the whole extracted to enable the verification of hypotheses, as the researcher cannot objectively verify the entire research population. (Maurice Angers, 2006, p. 301)

In line with the requirements of the study, which aims to examine the reality of distance education at the University of Bab Ezzouar, Houari Boumediene, Faculty of Computer Science, and specifically the impact of the supervising professor on the teaching and training process in distance education and their active role in this field, in light of the large number of students and the seriousness of this project in Algerian universities, and based on the nature of the subject and the large number of students and professors supervising distance education, we decided to have a purposive sample and interviewed some of the professors responsible for the teaching process, totaling 10 professors. Additionally, 20 students enrolled in the first year of computer science were interviewed. Therefore, our study sample consisted of 30 participants, and we aimed to ask them several open-ended questions about the topic of distance education.

### **3- Discussion of the Results in Light of the Hypotheses:**

Through this research, we attempted to confirm or refute the extent to which the university professor responsible for distance education and teaching at the University of Bab Ezzouar, Houari Boumediene, Faculty of Computer Science, contributes to this process. Distance education does not mean eliminating the role of the teacher or professor; rather, it makes their role more important and more challenging. The profession of the professor involved in the distance education and teaching team at the University of Bab Ezzouar has become a blend of tasks, including that of a leader, project manager, critic, and guide. For their role to be effective, they must combine specialization and experience. Teachers not only

need formal training but also continuous support from their colleagues to help them learn the best methods for integrating technology with their teaching. Undoubtedly, the role of the professor will remain essential and will become even more difficult. Distance education does not mean browsing the internet freely, but rather doing so in a focused manner, with guidance on how to use information, programs, forums, and chats correctly. This is one of the most important roles of the professor.

To give this concept a scientific basis, the study model was built with three hypotheses. In light of these hypotheses, after conducting the field study and interviews with the research sample, and after analyzing the responses, the data was interpreted based on reality and theoretical knowledge. In the end, we concluded with the most important findings:

### **3-1-Summary of the First Hypothesis:**

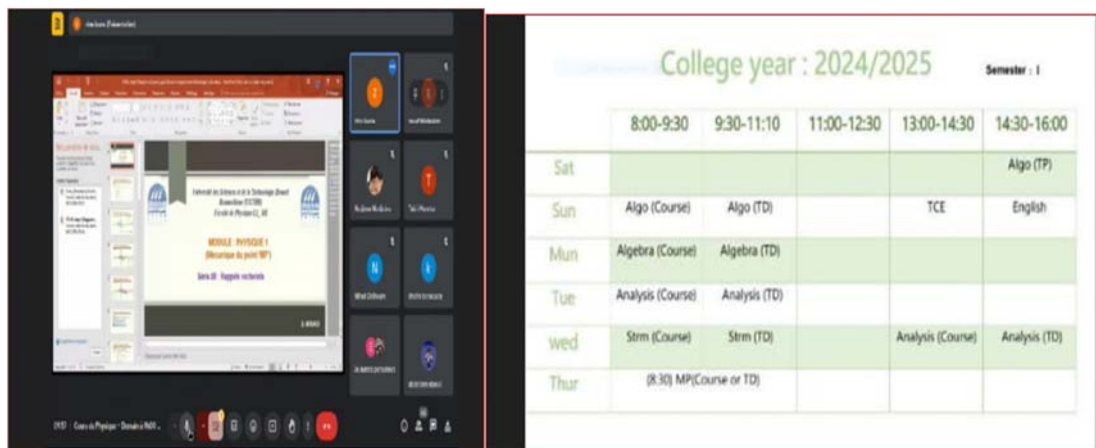
The instructor who is part of the teaching team has a significant level of control over the work platform in the teaching process, in order to ensure the success of distance education and achieve its objectives.

The respondents' answers regarding the instructor's mastery of the work platform indicated that the majority—both instructors and student participants—pointed out that the delivery of lessons and teaching sessions was organized on the platform. Given that online education has its own philosophy based on technological principles, the respondents believe that the distance learning system becomes effective for the learner or student when it is easily accessible, well-designed, clear, flexible, and offers a supportive learning environment. The system is also considered effective for both teacher and student when learners are able to demonstrate a high level of engagement, performance, and success in achieving the set objectives.

The system becomes effective when those in charge feel satisfied because they have provided accessible and satisfactory educational services without significant obstacles or difficulties, while also meeting students' needs and achieving instructors' goals. From this, it can be concluded—based on the respondents' statements—that the philosophy of distance education is founded on purely scientific principles represented by the fundamentals of educational technology. These focus primarily on individualized learning and self-directed study, which aims to deliver education tailored to learners' characteristics in terms of both content and timing. This type of education aligns with the student's own learning pace and ultimately aims for mastery in performance by the instructor, through effective management of the platform.

This includes timely posting of lessons, offering diverse content and types of questions (such as quizzes and general questions), introducing topics and questions during lectures, and granting students the freedom to ask questions related to the lecture topic. Additionally, announcements are made regarding discussions so that all students are aware of their scheduled times, allowing them to raise concerns about the lecture. This enables the instructor to manage each lecture's duration and schedule effectively, all with the goal of achieving the highest possible number of learning objectives and preparing the largest possible number of outstanding learners.

Thus, we conclude that the first hypothesis is largely confirmed, as it is linked to the specific time and place elements of the study. It indicates that the instructor who is part of the distance teaching and learning team has a considerable level of control over the work platform in the teaching process.



**Figure 1. Images illustrating the program and teaching methods at the university (Source: Houari Boumediene University, 2024/2025).**

### 3-2- Summary of the Second Hypothesis:

The instructor employs teaching skills that consider the characteristics, readiness, intelligence, abilities, interests, and attitudes of the learners, while also considering their individual differences, in order to ensure the success of the distance master's program.

Based on the interviews conducted with the participants, the majority stated that each instructor applies a set of teaching skills, with every instructor adopting their own unique method of delivering information to students. It was noted that instructors thoroughly consider the learners' readiness, intelligence, abilities, interests, attitudes, and also their individual differences. This is reflected in the diversity of subjects offered, as the students come from various academic disciplines. As a result, the variety in courses allows students to align their prior knowledge with the content of the lectures. Moreover, each instructor uses their own approach in presenting the lecture and formulating questions in a way that suits the nature of the specific course. Secondly, the nature of the students receiving the information is taken into consideration.

Most students stated that a large number of professors were successful in presenting their lectures, and students were able to absorb the lessons as if they were attending classes directly with the instructor. They expressed great appreciation for the professors' method of coordinating topics and formulating questions during lectures. Students also appreciated the freedom to inquire, and even if a student was unable to attend due to circumstances, particularly lack of internet access, the lecture would be recorded, allowing the student to revisit it later. They also mention that the exam times are very convenient for them, and the scheduling of both exams and discussions was done with the students' approval. That is, the professor informs them or an announcement is made regarding the timing of the periodic

exams. However, some students complain that the exam duration, whether 20 or 25 minutes, is too short. They justify this by the fact that the internet connection on the platform is often insufficient due to the large number of students, which leads to delays in submitting their answers. This issue is acknowledged by the professors in charge of the teaching process, as all students access the platform at the same time, causing the platform to slow down.

The professor believes that he tries to foster interaction and communication between teachers and students when using the internet for education. The professor's role in the age of the internet and distance learning can be enhanced through the following points: training teachers on skills for designing education and planning the educational process, using multimedia, the internet, email, producing media and educational webpages online, organizing awareness courses for teachers to explain the working methods, and also training students on how to navigate the platform through a series of announcements and videos sent to them on the platform.

Not all subjects can be easily or effectively taught through an online platform. Some subjects, such as those related to organizational culture and psychology, do not seem, based on my knowledge, to be well-suited for distance learning. These topics require a level of enrichment and depth, as they are abstract and complex. Interaction and modeling human behavior are at the core of these skills, and learning these skills is best done in a traditional classroom setting, where the teacher plays a role. Many of these skills depend on subtle differences in tone and body language, which are difficult to control in online courses. A teacher or professor involved in distance learning possesses skills that help students rely on themselves, making them active, creative, discussion-makers, and self-learners, rather than passive recipients of information. This involves applying a set of skills, sometimes aimed at instilling a sense of seriousness, activity, and competition among students by posing questions and topics for the students to research, increasing their ability to search. Additionally, the open discussion space encourages all forms of debate, creating a competitive and educational environment among the students themselves.

In conclusion, based on our description of the reality of students and professors involved in distance education at the University of Bab Ezzouar, we can deduce that the indicators of this hypothesis, which relates to the independent variable — the teaching skills followed by the professor, who takes into account the characteristics, readiness, intelligence, abilities, preferences, and attitudes of the students while considering individual differences — all contribute to the success of distance learning. Therefore, our hypothesis is largely confirmed: the professor, who is part of the teaching team and responsible for delivering lessons and the technical aspects, considers the characteristics, readiness, intelligence, abilities, preferences, and attitudes of the students to ensure the success of this distance education.

**3-3 Summary of the third hypothesis, which states:** The professor and the administrative team at the University of Bab Ezzouar (as a model) design educational programs in a way that aligns with and helps students achieve the desired educational objectives in the least time,

effort, and cost. This leads to an increase in student activity and effectiveness in achieving the success of distance learning and accomplishing the planned goals.



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Année	Spécialité	Section	Date	Horaire	Module	Salle
L1	SIGL	1	06/01/2025	08:30	ALG1	C1+C2+C3
			08/01/2025	08:30	ALGO1	C1+C2+C3
			11/01/2025	08:30	ANALYS1	C1+C2+C3
			14/01/2025	08:30	MP	C1+C2+C3
			16/01/2025	08:30	STRM1	C1+C2+C3
			En ligne	En ligne	LE	En ligne
					TIC	En ligne



**University of Science and Technology Houari Boumediene**  
**Vice-rectorate in charge of the higher education of graduation, the continuing education**  
**et degrees**

Schedules of : 1st year LIC.SIGL -- Section: A

College year: 2024/2025 Semester: 2 Date: 23/01/2025

	08:00 - 09:30	09:40 - 11:10	11:20 - 12:50	13:00 - 14:30	14:40 - 16:10	16:20 - 17:50
Sat	ALG02 course SIGL	G1:SIGL /ALG02 -- DW,			SM course SIGL	
Sun	G2:SIGL /ALG02 -- DW,	G1:SIGL /ALG02 -- PW,	HS course SIGL			
Mon	ALGEB2 course SIGL	G1:SIGL /ALGEB2 -- DW,				
Tue	ANA2 course SIGL	G1:SIGL /ANA2 -- DW,				
Wed	OPT3 course SIGL	G1:SIGL /OPT3 -- PW,		ELEC course SIGL	G1:SIGL /ELEC -- DW,	
Thu	G1:SIGL /SM -- DW,	STAT course SIGL	G1:SIGL /STAT -- DW,			

**Figure 2. Images illustrating the exam schedule at the university (Source: Houari Boumediene University, 2024/2025).**

We know that the success of any project depends on the process of interaction between the presenter and the listener, between the teacher and the learner. If these factors are not considered when designing e-learning programs, the outcome may be unsatisfactory, meaning



that the goal of the design has not been achieved. Consequently, the e-learning platform will not be effective or meet the ambitions of the designer or adopter on one hand, and it will be unsuitable for the educational context for which it was designed on the other. Therefore, the teacher, or the instructor in charge of the technical aspect in particular, must play a key role in selecting e-learning programs. When making this choice, they must consider the characteristics of their students and the objectives they aim to achieve from the course content, and they should choose the appropriate learning model for the platform.

The role of the instructional designer is defined as all the activities carried out by the person responsible for designing the educational material, such as curricula, programs, study units, or lessons, and analyzing the external and internal conditions related to them. This is done with the aim of setting their objectives, analyzing their content, organizing it, choosing the appropriate teaching methods, suggesting the necessary tools, materials, devices, and educational media, proposing cognitive tools that facilitate learning, and designing assessment tests for their content. Therefore, it has become essential for the teacher in the age of computers and the internet to acquire the skills of an instructional designer so that they can design the educational material they teach, whether in traditional education or e-learning.

Through the open interviews with the participants, we found that the professors at the University of Bab Ezzouar, Houari Boumediene, Faculty of Computer Science, have undergone a considerable number of training sessions on how to design programs and lessons. In particular, the professors in charge of the technical side or administrative professors are highly skilled and proficient in the teaching process. Consequently, the training and development sessions have equipped the professors with instructional design skills related to how to prepare educational programs, curricula, and lessons in a way that ensures the achievement of educational objectives. Now, after going through this experience at the Algerian university, it is the responsibility of distance education instructors to stay updated on the latest trends in education, including teaching methods, assessment strategies, and how to present educational material in an engaging and appropriate manner for the students' level. They should present the content in an interesting style, with coordinated colors and designs. Additionally, they need to be familiar with the latest developments in the internet world, especially in the fields of website and page design, multimedia in all its forms, and the latest communication technologies, and how to use them. They should also know how to obtain information and knowledge from reliable sources. This, of course, will directly impact the students' academic performance, as teachers who practice instructional design will have a high-quality approach to teaching, leading to higher quality student performance and academic achievements.

Thus, we conclude that the third hypothesis is largely confirmed, as it is linked to the factors of time and place defined for the study. This suggests the existence of a causal relationship between designing educational programs in a way that aligns with and helps the student achieve the desired educational objectives in the least time, effort, and cost, leading to increased student activity, effectiveness, and the successful implementation of distance education.

At the University of Bab Ezzouar, Houari Boumediene, Faculty of Computer Science as a model, the experience of distance education and teaching is considered an effective experience in Algeria. Below is a brief overview of this experience:

The launch of the distance education platform began in the 2020/2021 academic year, with the goal of contributing effectively to the scientific development seen in both Arab and Western countries through the application of the latest distance education methods worldwide. The role of the distance education team is to support and develop the educational process with the most effective communication and assessment methods for students to ensure the success of this project. This is achieved through:

- Providing interactive systems with students such as virtual classrooms and online forums to enable remote discussions between the professor and students.
- Providing qualified human resources – specialized professors with high qualifications in the field of developing academic materials.
- Applying various technological methods such as images, sound, and video.
- Preparing the administrative and procedural environment for professors and providing incentives for the success of the distance education process.
- Offering training programs for professors related to teaching, development, and creating instructional videos for both teaching staff, students, and administrative personnel.
- Creating websites for courses that students can directly access to view content in both audio and video formats.

### **Conclusion:**

The higher education and scientific research sector is one of the sectors that has seen significant development in its structures as well as in the actors involved at various levels, with the aim of improving the services provided, particularly to students and professors, to advance and develop scientific research. Among the services provided by the higher authorities of university institutions are digital platforms designed to facilitate the tasks of employees and students, with the most notable being the distance learning platform, which makes it easier for professors to communicate with students and deliver lessons in an organized and efficient manner. Therefore, the primary goal of this study is to explore the impact of e-learning and its advantages, including the ability to teach a large number of students without the constraints of time or location in a short period, facilitating dialogue and discussion, using various teaching aids and educational tools, promoting self-learning, and offering immediate and quick feedback, recognizing results, correcting mistakes, and taking into account individual differences for each learner. Despite the small sample size, the majority of opinions support this idea and are optimistic about such digital projects, provided that there is increased awareness within the academic community and attention to scientific training that enhances the use of digital platforms for all users. The implementation of digitalization requires effort, time, and strategic long-term plans, progressing gradually while considering the changes occurring in higher education. This is the path that Algeria should follow. In light of the data and experiences presented, we attempt in this context to provide some recommendations and suggestions that would support and enhance the e-learning

experience in higher education institutions, with Bab Ezzouar University as a model. Among the key recommendations are the need for the Ministry of Higher Education to allocate an appropriate budget, as this measure is crucial to keep pace with rapid technological developments and to ensure the provision of adequate digital infrastructure. It is also recommended to instill a digital culture within the university through awareness campaigns and sensitization programs that highlight the importance of e-learning and its role in improving the quality of higher education. Additionally, efforts should be made to train the human resources—professors, administrators, and students—on how to use various electronic programs and applications, which will enhance their competencies and ensure the optimal use of modern technologies in the educational process.

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