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Assessment of online learning in Algerian universities during COVID-19

Boutkhil Guemide

University Mohammed Boudiaf of Msila - Algeria

Hai el Djor - Lotissement Indidviduel - N° 04 BIS - Béchar Djedid - Wilaya de Béchar (08013) - Algeria

boutkhil.ghemid@univ-msila.dz

Dr. Salima Maouche

University Abd Al Rahman Mira of Bejaia - Algeria

Chez Ketfi Bachir - 4 Rue Nacer Benyahia - Bejaia (06000) - Algeria

salima_maouche@yahoo.fr

Abstract

Algeria has been hit by the Coronavirus, and as a result, the Algerian government has taken serious measures to deal with the current situation. In this context, the Algerian ministry of higher education and scientific research has instructed universities to perform both online teaching and learning through regular, established eLearning platforms, as a step towards reducing the spread of the Coronavirus. Although this measure has been largely appreciated by academics, teachers, and students, online learning in Algerian universities, especially during the critical period of the Corona pandemic lacks many issues, such as, facilities and materials that should be resolved to achieve a total success for online learning in Algerian universities.

The purpose of the present paper is to provide an assessment of the online learning electronic system provided by Algerian universities during the pandemic. Basically, the research relies on students' and teachers' questionnaires as the undertaking tool to gather valid data in order to analyze and highlight the shortcomings of the online learning which has been provided in the aforementioned period. The research results indicated that total reliance on online learning was according to strategies and planned learning objectives. However, it did not go well. As a matter of fact, the online learning system in the Algerian higher education sector needs a solid platform for its total implementation and needs to make sure that the elements of the teaching/ and learning process succeed with the mastery of the technological tools. The research concluded with some recommendations which should be taken into account for better implementation of online learning electronic system in the Algerian higher education context.

Key words: Algerian universities, Corona Virus, COVID-19, Electronic system, online learning, MOODLE.

تقييم تجربة التعليم الإلكتروني في الجامعات الجزائرية خلال جائحة كورنا (كوفيد – 19)

الأستاذ قميد بوتخيل
جامعة محمد بوضياف - المسيلة - الجزائر
حي الجرف - تجزئة فردية - باب رقم 04 مكرر
بشار الجديد - ولاية بشار - (08013) - الجزائر
boutkhil.ghemid@univ-msila.dz

الدكتورة معوش سليمة
جامعة عبد الرحمان ميرة - بجاية - الجزائر
عند قطفي بشير - 04 شارع ناصر بن يحي
ولاية بجاية - (06000) - الجزائر
salima_maouche@yahoo.fr

المستخلص:

تضررت الجزائر من فيروس كورونا، ونتيجة لذلك اتخذت الحكومة الجزائرية إجراءات جادة للتعامل مع الوضع الراهن. في هذا السياق، وجهت وزارة التعليم العالي والبحث العلمي الجزائرية المؤسسات الجامعية لاتخاذ التعليم الالكتروني كوسيلة للتدريس من خلال منصات التعليم الإلكتروني المنتظمة، وذلك كخطوة للحد من انتشار فيروس كورونا. على الرغم من أن هذا الإجراء قد تم استحسانه إلى حد كبير من قبل الأكاديميين والأساتذة والطلاب، إلا أن التعليم الالكتروني في الجامعات الجزائرية، وخاصة خلال الفترة الحرجة لوباء كورونا، افتقر إلى العديد من الوسائل والامكانيات مثل، التسهيلات والمواد التي يجب توفرها لتحقيق تعليم الكتروني كامل وناجح في الجامعات الجزائرية.

تهدف هذه الورقة البحثية الى تقديم تقييم لنظام التعلم الإلكتروني الذي توفر في الجامعات الجزائرية أثناء فترة الوباء. يعتمد البحث في هذه الورقة البحثية بشكل أساسي على دراسة ميدانية تقوم على استبيانات للطلاب والأساتذة كأداة بحثية لجمع البيانات الصحيحة من أجل تحليل وإبراز أوجه القصور في التعليم الالكتروني الذي تم توفيره في الفترة المذكورة أعلاه. أيضًا، تعتبر دراسة استقصائية تحدد الإطار المستقبلي لنظام التعليم الناجح في الجامعات الجزائرية. وقد أشارت نتائج البحث إلى أن الاعتماد الكلي على التعليم الالكتروني كان وفقًا للاستراتيجيات وأهداف التعليم المخطط له. ومع ذلك، لم تسر الأمور على ما يرام. في الواقع، يحتاج نظام التعليم الالكتروني في سياق التعليم العالي الجزائري إلى أرضية وقاعدة متينة لتنفيذه بالكامل، ويحتاج إلى التأكد من أن عناصر عملية التدريس والتعلم تتماشى وإتقان الأدوات التكنولوجية والمعلوماتية الحديثة. على الرغم من أن أعضاء هيئة التدريس يدركون معنى التعليم الالكتروني، الا أنهم يشعرون أنهم ما زالوا غير مستعدين للانخراط بشكل كامل في نظام التعليم الإلكتروني بسبب الافتقار إلى البنية التحتية القوية، ونقص التدريب الفعال، والعقبات الأخرى والمشاكل ذات الصلة. واختتمت الورقة البحثية ببعض التوصيات التي يجب أن تؤخذ في الاعتبار من أجل تنفيذ أفضل لنظام التعليم الإلكتروني.

الكلمات المفتاحية: الجامعات الجزائرية، فيروس كورونا، كوفيد ،9؛ التعليم الالكتروني، منصة موودل.

1. INTRODUCTION

In the 21st century, the higher education sector has also been affected by ICTs and the rapidly changing society. The use of Internet technology to support learning and teaching has recently become much easier and much feasible than it used to be. As a result, the huge exploitation of ICTs in the higher education sector has led universities and colleges started to switch from traditional to online learning. Since the Internet has made significant changes to almost all aspects of our lives, it has made online learning possible, and many researchers and teaching staffs have become interested in online learning to enhance and improve students' learning outcomes. Furthermore, demand for online learning has rapidly

increased from students worldwide and from all walks of life. Within these changes which affected the educational sectors, educators have realized the need for new approaches to learning and teaching.

The beginning of 2020 has witnessed the emergence of the deadly Coronavirus epidemic which has swept the world. As the new Corona Virus continues to spread in the world, it has left 1, 338, 100 deaths, in both developed and developing countries. Although many efforts have been done and lot of resources have been exploited by governments and research centers and laboratories, no effective cure has been reached; a factor which indicates that the Corona epidemic is very dangerous. As a matter of fact, the Corona Virus has led to unexpected negative consequences.

It is worth mentioning that the educational sector world widely was also affected by COVID-19. As a result, schools, colleges, and universities were subjected to closure, in a way to contain the coronavirus and stop its fast-wide spreading. Therefore, governments and policymakers in the world ordered universities, colleges, and schools to resort to online learning in this time of the crisis. Conversion from traditional learning to online learning proved useful, since it was the only way for educators and teachers to be in daily contact with their learners, and to assure the continuity for students to receive their lessons and their courses online. So, the outbreak of COVID-19 was the major factor of diversion to online learning.

Algeria, like many world countries, has been subjected to the 2020 Coronavirus pandemic spread since Feb. 25, 2020, when an Italian citizen was tested positive for SARS-CoV-2 [1]. Then, other cases with Covid-19 were revealed, and the total increased in Algeria as of November, 27, 2020 to reach 1058 active cases, 612 recovered cases, and 20 deaths [2]. As a result, Algerian policymakers ordered an immediate cessation of study at schools and universities to prevent a possible widespread of the coronavirus. Therefore, the Ministry of Higher Education called upon to move to the use of online education by using online platforms to ensure the continuity of students receiving lessons during the quarantine period as a precaution because of the outbreak of the coronavirus.

The present paper highlights the status of online learning in Algerian universities during COVID-19. Using a quantitative study, the researchers relied basically on both students' and teachers' questionnaires to deeply analyze how online learning was conducted, and how both students and teachers used and exploited the online electronic systems which were set by Algerian universities.

2. COVID-19 and the world sanitary crisis

The new coronavirus is attracting a lot of attention. Health experts are concerned because little is known about this new virus, and it has the potential to cause severe illness and pneumonia in some people. The virus that causes COVID-19 is a new Corona Virus that has spread throughout the world. Being an infectious disease, Corona Virus is an illness caused by a virus that can spread from person- to- person [3]. Originally, the Corona Virus emerged in China. In December, 31, 2019, the Wuhan Municipal Health Commission in Wuhan City, Hubei province in China, reported a cluster of 27 pneumonia cases, with a common reported link to Wuhan's Huanan Seafood Wholesale Market [4].

The appearance of the new coronavirus is affecting 210 of the world countries. Actually, there are 61,781,384 reported cases, 1,445,915 confirmed deaths, and 42, 674, 860 being recovered [5]. The worsening Corona Virus epidemic has domino effect

in most world countries. i.e. The Corona virus pandemic has started from China and affected all countries of the world. Also, it affected major industries and economies which caused global economy to slow down. Furthermore, COVID-19 has affected globally the educational sector in most world countries. Because of social distancing and confinement policies, schools, colleges, and universities were subjected to closures and started adopting electronic learning systems to deliver online learning which proved a necessity for educators to assure students receiving their courses.

3. Online learning in the digital age:

The digital revolution has affected the global society, and both students and teachers are the beneficiaries of knowledge explosion and communication tools, which are available and used by teachers and learners for sharing and distributing of knowledge. Lots of students use cell phones which have potential as a learning tool. Another powerful communication tool is a podcast, which can feature class-produced talk shows, or audio files of books, articles, and poems. Schools, colleges, and universities all over the world are developing their own Web sites to help teachers, students, and parents communicate.

The spread of digital mediums and the ever-increasing access to the Internet has made a strong impact on various disciplines of human life. In addition, another phenomenon that has spread significantly in the recent years and that deserves a special attention relates to the field of education: the appearance and widespread of online educational courses. As a result, the traditional education system, in general, and the higher- education level, in particular, are now facing significant uncertainties related with their future operations.

Amongst the factors that has contributed to the rise of digital learning is the so-called technological revolution that sprung out as the developed economies renewed themselves. Offering online lessons could now be an efficient and convenient educational tool than a whole traditional academic course. The whole technological movement has shaped the mindset of an entire young generation.

The technological revolution has especially been characterized by an outstanding spread of smart digital devices. The latter represents one of the main causes that have fueled the rise for online educational alternatives. Traditional educational institutes are now being challenged by what are known as massive open online courses. In addition, online courses have changed the learning approach in both broader sense and in the digital context. The ever-increasing presence of both students and courses on the web has already made the online educational alternative superior towards the traditional educational system. From 2012 when the idea of the MOOC created its first wave of excitement until now, online teaching methods are still in their heydays and still having a solid growth potential.

3.1. Definition and characteristics of online learning

In the era of globalization, the Internet has become the largest, most accessible database of information. The World Wide Web has changed the way people communicate, shop, socialize, do business, and think about knowledge and learning. Online education is changing the face of traditional classrooms and making learning more accessible than ever before.

Arora and Dhull (2017) defined online learning as a form of distance learning which encompasses the creation and proliferation of the personal computer, the globalization of ideas and other human acts, and the use of technology in exchanging ideas and providing access to more people. The instructional delivery system is created basically through combining audio, video, computer, and other networking technologies. The fundamental method to unite the online/ or distance learning instructor with his learner is the network, suitable for online/ distance learning implementations, which includes satellite, cable modem, digital subscriber lines (DSL), and wireless cable [6].

Being considered as a contemporary distance learning, Greenberg (1998) defined the concept as "a planned teaching/ learning experience that uses a wide spectrum of technologies to reach learners at a distance and is designed to encourage learner interaction and certification of learning" [7]. According to Teaster and Blieszner (1999), "the term distance learning has been applied to many instructional methods; however, its primary distinction is that the teacher and the learner are separate in space and possibly time" [8]. Desmond Keegan (1995) provided another definition in which he stated that distance education and training result from the technological separation of teacher and learner which frees the student from the necessity of traveling to "a fixed place, at a fixed time, to meet a fixed person, in order to be trained" [9]. From these definitions, students and teachers are separated by space, but not necessarily by time.

The term on-line education includes other terms; such as, virtual education, Internet-based education, web-based education, and education via computer-mediated communication. Based on Desmond Keegan's (1988) definition, the web- edu project defined online education with the following criteria:

- Separating between teachers and learners: Being distinguished from face-to-face education;
- Using computer network: A tool to present and distribute educational content;
- Providing two-way communication via a computer network: Benefits for students, teachers, and staff [10].

Online learning is electronically supported learning that relies on the Internet for teacher/ and student interaction and the distribution of class materials, including audio, video, text, animations, virtual training environments, and live chats with tutors. It is the newest and most popular form of distance education today. In addition, it is a type of education that takes place over the Internet. It is often referred to as *eLearning*. However, online learning is just one type of "distance learning"- the umbrella term for any learning that takes place across distance. Distance learning has a long history and there are several types available today, including:

- Correspondence Courses: conducted through regular mail with little interaction;
- Telecourses: content is delivered via radio or television broadcast;
- Online Learning: Internet- based courses offered synchronously and/or asynchronously;
- Mobile Learning: Using devices; such as, cellular phones, PDAs and digital audio players (iPods, MP3 players) [11].

According to Nidhish and Santhakumar (2019), online learning is characterized by the following features:

- It is an emerging approach to learn at students' own premise through advanced information-communication technologies; such as, Moodle and MOOC, either asynchronously or synchronously;
- It is the type of instruction that is mediated via the Internet platform;
- Teaching and learning facilitated through technology in which most of the instruction happens through a learning management system (LMS);
- Educational program where content is primarily delivered through the Internet. Communication is typically asynchronous, occurring through e-mail, list servers, discussion postings, and chat rooms;
- Most online learning includes use of a course management system that supports interaction with discussion boards, assessment with quizzes, texts and online collaborative classrooms;
- Students' learning occurs online using the Internet, or web- based instruction and applications that may take place fully online, or in blended, or hybrid formats [12].

Online learning meets the needs of an ever-growing population of students who cannot/ or prefer not to participate in traditional classroom settings. These include those unable to attend traditional classes, who cannot find a particular class at their chosen institution, who live in remote locations, who work full-time and can only study at or after work, and those who simply prefer to learn independently. Although online learning has its limitations, there are several advantages of online learning that explain why eLearning may be the greatest revolution in today's education. Below are five advantages.

- **Comfort:** All lectures and needed materials are provided via online platforms, so learners will easily access them from their homes.
- **Online courses look great on a resume:** An online program will always look good on their resume. It will show potential employers that they are committed to learning, and they are eager to obtain more knowledge and new skills. If a learner obtains an online degree from a prestigious university, he will boost his career.
- **Self- paced learning:** A self-paced system enables students to make progress with rhythm that suits them: They can start completing their targets at any time, and can arrange a learning schedule that meets their needs.
- **Lower costs:** Online programs are cheaper than the ones held in a traditional campus setting, which is a convincing factor to consider. The average tuition for online courses depends on multiple factors, so it varies from one program to another.

3.2. Online learning and connectivism theory

The numerous learning theories differ in the interpretation of the learning process, which makes it difficult for one viewpoint to grasp the entire learning process and provide a comprehensive framework for it. Curricula designers need answers to multiple questions about the characteristics of learners; such as, how they learn, and learning conditions which facilitate the learning process, methods and appropriate procedures to the occurrence of learning, and assessment methods. These questions are

necessary for curriculum design, and theories of teaching and learning provide answers to them.

With the beginning of the third millennium, many learning communities began to spread clearly across the World Wide Web. This was accompanied by the emergence of many applications and software that meet the needs of these communities, which were labelled the second generation of web 2.0; such as, blogs, media sharing services, and website feeds, which are services that have given the Internet a different character. As a result, Internet users have become active and cooperative participants in building Internet content. With the widespread use of these services in the educational process, the concept of the second generation of eLearning 2.0 emerged, which has the same interactive features as the second generation of the web. Thus, the nature of eLearning has changed radically, which made traditional learning theories; such as, Behaviorism, Cognitivism, and Constructivism unable to interpret non-traditional learning processes that depend mainly on second generation eLearning services.

Since the current learning theories are unable to deal with the changing nature of learning and learners as a result of the tremendous impacts of technological developments in the current digital age, education in the current era needs an update theory that describes its principles and applications as a reflection of the new social environment for learners which is associated with modern technology based on its various means.

There emerged a societal knowledge theory which bears the characteristics of connectivism, and it strives to overcome the limitations imposed on Behaviorism, Cognitivism, and Constructivism by combining the salient elements from the three frameworks of educational, social, and technological with the aim of developing new and dynamic theories. To construct a learning theory in the digital age, it uses the concept of *network*, which consists of several *nodes* that are linked by *connections*. The *nodes* represent information and data on the web, and it is either text, audio, or visual. As for *connections*, it is the educational process itself, which is the effort made to link these *nodes* together to form a *network* of personal knowledge, and this concept is compatible with the idea of social software used in the web [13].

In 2004, George Siemens proposed his connectivism theory, and defined it as a theory that seeks to clarify how learning occurs in complex, electronic environments, and how it is affected by new social dynamics, and supported by new technologies. Consequently, connectivism is a modern learning theory that has been associated with contemporary technological development; it seeks to place learning via networks in an effective social framework. Accordingly, connectivism is in line with the 21st century's needs, which takes into account recent trends in learning, the use of technology and networks, and combining relevant elements in many learning theories, social structures, and technology to build a strong theory of learning in the digital era [14].

Siemens (2005) defined connectivism as "a theory that seeks to clarify how learning occurs in complex electronic environments, how it is affected by new social dynamics, and how it is supported by new technologies." In the educational field, connectivism uses the concept of a *Network*, which consists of several *Nodes* that are linked by *Connections*. The *Nodes* represent the information and data on the *Network*, and they are either text, audio, or pictorial, and the *Connections* are the learning process itself, which is the effort made to link these nodes with each other to form a *Network* of personal knowledge [13].

Adopting connectivism in the learning process relies on the following principles:

- Knowing how to obtain information is more important than the information itself;
- Learning is the process of linking specialized information sources, and the learner can improve his learning process by working across the local *Network*;
- Ability to see *Connections* between areas, ideas, concepts and key skills;
- Accuracy and updating of knowledge are the two objectives of all communicative learning activities;
- The provision and maintenance of communications are essential to facilitate continuous learning;
- Learning occurs in different ways, including: courses, e-mails, social networks, dialogue discussions, internet browsers, and reading blogs;
- Learning is the process of creating knowledge;
- Different approaches and interpersonal skills are important for learning effectively in today's society;
- Mastery and access to modern knowledge are the goal of communicative learning [13].

Connectivism can be employed in both teaching and learning processes through the use of some social networks via the World Wide Web; such as, blogs, Facebook, YouTube, Flickr, and Wiki. The main elements in curriculum design of eLearning based on connectivism are as follows:

- **Educational objectives**: connectivism does not take educational objectives as central to communicative curriculum design. In light of connectivism, greater emphasis is placed on the importance of teaching learners how to search for and analyze information in order to obtain knowledge;
- **Educational content:** Curriculum design does not give much importance to contents, but rather focuses on the learning process itself, learning strategies, and networks. Accordingly, learners choose most of the contents from the resources available in the learning networks and environments in which they participate;
- **Learning environment:** The learning environment occupies a central position in communicative curriculum design, as the curriculum designer does not focus merely on designing educational courses, or programs. However, he must look at the environment in which learning takes place and characteristics that encourage learners to continuous learning and self- expression;
- **Learning activities under connectivism:** Within the framework of connectivism curriculum design, learners freely undertake learning activities they prefer. Among the most prominent learning activities based on connectivism are (1) preparing educational materials that help learners to understand and publish them on the web, (2) sharing various media sources through websites; such as, YouTube and Google Docs.

In the light of connectivism, curriculum designer views the mastery of learning contents as a simple part of what should be assessed by learners. The skills of social networking and dealing with information are the basic evaluation dimensions for the curriculum designer, and among the assessment methods that reflect communication thinking are (1) working files and personal blogs, and (2) media produced by

students, such as: essay writing and PowerPoint-enhanced oral presentations.

In fact, incorporating real- world, hands-on knowledge can be a challenge in eLearning. Fortunately, connectivism gives you the ability to incorporate social media networks, community forums, video sharing platforms, and a variety of other online tools to make your eLearning courses collaborative, interactive, and experience-rich.

Implementing connectivism in eLearning strategy makes learners active participants in the eLearning process. They should feel as though they have complete control over their personal eLearning experience, and that their level of participation has a direct impact on how and when they achieve their learning goals. In fact, a teacher may want to create a resource list that his learners can use to determine which eLearning platforms are ideally suited to their personal needs and preferences. Furthermore, learners should be aware of the fact that they are part of a greater online learning community, which can be achieved by encouraging them to communicate with their peers and instructors online.

3.3. Online Learning in time of COVID-19

The Coronavirus has shaken up the education sector globally, and the social situation is scaring to educational institutions; for they are struggling to identify options in order to deal with two major challenges: pertaining with detaining, or stopping social contacts and keeping learning going. Under the pressure of COVID-19, society members are afraid of sending their children to schools for the fact that they may be infected by Corona Virus as a result of contacts inside and outside classrooms [14]. The outbreak of COVID-19 pandemic forced many schools, colleges, and universities to remain closed temporarily due to confinement policies which were implemented by governments in order to contain the spread of the virus. This; in fact, has resulted in more than 1.6 billion children are out of classroom [15]. Likewise, students were affected by closure of colleges and universities, which have discontinued in-person teaching. In response to the current situation, educators have been instrumental in finding new ways to ensure learning continues for learners by developing online learning materials to meet students' needs regularly.

Online learning is easily accessible and can even reach to rural and remote areas. It is considered a relatively cheaper mode of education in terms of the lower cost of transportation, accommodation, and the overall cost of institution-based learning. Flexibility is another interesting aspect of online learning; a learner can schedule or plan their time for completion of courses available online. Combining face-to-face lectures with technology gives rise to blended learning and flipped classrooms; this type of learning environment can increase the learning potential of students who can learn anytime and anywhere, thereby developing new skills in the process leading to life-long learning. The government also recognizes the increasing importance of online learning in this dynamic world. The severe explosion of Coronavirus disease can make online learning serve as a viable option in the time of crisis [16].

The major part of the world is on quarantine because of the serious outbreak of the global pandemic COVID- 19 and; therefore, many cities have turned into phantom cities and its effects can be seen in schools, colleges, and universities, too. The Coronavirus has made institutions to go from offline

mode to online mode of pedagogy. This crisis will make the institutions accept modern technology. This catastrophe will show us the lucrative side of online teaching and learning. With the help of online teaching modes, we can sermonize a large number of students at any time and in any part of the world. All institutions must scramble different options of online pedagogical approaches and try to use technology more aptly. Many universities around the world have fully digitalized their operations understanding the dire need of this current situation.

Online learning is emerging as a victor ludorum amidst this chaos. Therefore, the quality enhancement of online teaching– learning is crucial at this stage. Online learning in Chinese universities has increased exponentially after the COVID-19 outbreak. There was an overnight shift of normal classrooms into e-classrooms, and educators have shifted their entire pedagogical approach to adapt to the changing situations. During this tough time, the concern is not about whether online teaching–learning methods can provide quality education, it is rather how academic institutions will be able to adopt online learning in such a massive manner [17].

It is worth mentioning that Liguori and Winkler (2020) stated that educators, in this time of the pandemic, challenge to adapt to the changes in a short period of time and their ability to maintain the quality of teaching and learning. The shift from face-to-face lectures to online classes is the only possible solution in time of crisis. Indeed, academic institutions will not be able to transform all of their curricula into online resource overnight. Distance, scale, and personalized teaching and learning are the three biggest challenges for online teaching. Innovative solutions by institutions can only help educators deal with this pandemic [18]. Because of COVID-19 virus widespread, flipping to online classes and online learning is a temporary outcome from the current situation. Online courses are undertaken in most world countries. Therefore, to continue the online learning process in the virtual online environment, Google products will be useful in such problematic situations. These are: (1) Gmail, (2) Google Forms, (3) Calendars, (4) G-Drive, (5) Google Hangouts, (6) Google Jam board and Drawings, (7) Google Classroom, and (8) Open Board Software. These tools can successfully be used as an alternative for face-to-face classes [19].

Although online learning provides opportunities to use some technologies which are available online, these technologies create a lot of difficulties and problems which are associated with modern technology. These range from downloading errors, issues with installation, login problems, problems with audio and video, … etc. In some situations, learners find online teaching boring and unengaging. Online learning has so much of time and flexibility that students never find time to do it. Personal attention is also a huge issue facing online learning. Students want two-way interaction which sometimes gets difficult to implement. The learning process cannot reach its full potential until students practice what they learn. As for online content, it is all theoretical and does not let students practice and learn effectively. Students feel that lack of community, technical problems, and difficulties in understanding instructional goals are the major barriers for online learning [20]. In their study, Parkes, Stein, and Reading (2015) found that students were not sufficiently prepared for balancing their work, family, and social lives with their study lives in an online learning environment. Students were also found to be poorly prepared for several eLearning competencies and academic-type competencies. Also, there is a low-

level preparedness among the students concerning the usage of Learning Management Systems [21].

The challenge to educational institutions is not only finding new technology and using it, but also reimagining its education, thereby helping students and academic staff who are seeking guidance for digital literacy.

4. Online learning in Algerian universities during COVID-19

After its independence, Algeria faced challenges on political, economic, social, and cultural levels. From this perspective, it was necessary to give huge importance to education. Therefore, the government worked to build educational institutions and adopt democratic and free education to the masses.

However, the objectives were large and the potentials were limited. Within these circumstances, there emerged the idea of establishing an academic center that works to universalize education through correspondence, and directed to learners who wish to engage in learning, regardless of age, place, and time, and the use of available means; such as, printed documents, radio, and television. As a result, the National Center for Generalized Education and completed by correspondence through radio and television was established according to Order No. 67/ 69 in May 22, 1969. Its primary mission is to provide education by correspondence and audio-visual and technical means to learners unable to carry on their studies regularly in schools, or universities; and those who are enrolled in educational institutions and intend to improve their knowledge. In addition, the center organizes Arabic language lessons in order to advance in the process of Arabization.

The center has allowed thousands of citizens to pursue their studies by using various educational methods; such as, printed documents, audiovisual documents, organizing and allocating stimulating classes for the benefit of learners, through which they met with tutors. Also, and some newspapers; such as, Al Massaa (the evening), used to publish exercises and their solutions in various referenced materials. To perform this mission and reach a wide audience of learners at the national level, 20 regional centers were established across the country, in addition to a printing press that prints all the needed documents. In order to enjoy more independence in recording lessons, an audiovisual laboratory was established in February 1987 to produce audiovisual documents. In view of the changes that occurred in the world and their impacts in Algeria, it was necessary to keep pace with the scientific and technological revolution of the new millennium. The center was transferred into the National Office for Distance Education and Training on September 30, 2001 in order to expand its tasks, diversification, and development of its means by using modern technological means.

The University of Continuous Formation is another example of distance education in Algeria. It is a public educational institution that was set up in 1990 to provide education for those who did not carry on their learning process for some critical circumstances. Since its establishment, the University of Continuous Formation implemented a policy of distance learning using the available means of radio and television and other resources to provide a good quality of education. Recently, the University of Continuous Formation has started to adopt blended learning which merges between class presence and the exploitation of ICTs and other available resources.

In the Algerian higher educational context, universities started adopting online learning

optionally. The ministry of higher education left the practice at the universities' will. Therefore, some universities started adopting distance education through the delivery of courses to students in the universities' websites.

The Corona Virus pandemic did not affect affected educational systems in all countries of the world, which led to the suspension and closure of schools and universities, as a preventive measure to contain the spread of the pandemic that hit the whole world. In Algeria, COVID-19 has altered the higher education system. In response to the measures taken by the Algerian President, the Ministry of Higher Education resolved to on- line education in light of the Corona Virus crisis, as the Ministry of Higher Education approved an educational plan for Algerian universities that includes details of carrying on on-line courses and completing studies.

The Algerian Minister of Higher Education and Scientific Research called on the directors of universities to lay the ground to ensure the continuity of students receiving the lessons remotely for a period of not less than a month, within the framework of what she called a pedagogical initiative classified as a precautionary measure due to the outbreak of the Coronavirus. The Minister set the date of March 15, 2020 to commence launching the implementation of the initiative in practice, pointing out the importance of strict application of the contents of the memo. In addition, he stressed in a note addressed to the directors of university institutions on the need to take into account all the necessary technical measures to maintain remote communication between teachers and students. As a result, Algerian universities have set up MOODLE electronic systems to start on- line education to complete studies, and link between teachers and students online. Taking parallel measures that guarantee the minimum in terms of working career and studying is of great importance during this crisis. In addition, it must be emphasized that the importance of eLearning makes students, teachers, and researchers carry their tasks virtually because of the closure of all educational and university institutions.

The Research methodology

The study is basically descriptive and tries to analyze the status of online learning in Algerian universities during the coronavirus pandemic. As for the samples of the present study, the researchers selected randomly the samples which comprised of teachers and students of seven Algerian universities (different departments). The reasons behind selecting these seven universities rely on the fact that all Algerian universities used the same electronic online system; namely, MOODLE. In addition, the researchers opted for large responses from teachers since they had lot of contacts with. Finally, 186 teachers responded to questionnaire, and 280 students responded to the questionnaire.

The researchers relied on two questionnaires: students' and teachers' questionnaires. As for students' questionnaire, it is divided into three sections. The first section contains personal information about students' ages, gender, English study period at the university, number of on-line courses taken at the university, time spent using computer for educational purposes, time spent for exploring the net. The second section contains basically questions about students' perspectives on online education. The third section contains questions about statements of online learning. The questions vary from Likert Scale, multiple choice, Yes/ No format, and open- ended questions.

The teachers' questionnaire is structured into two sections. The first section contains personal information about teachers' ages, gender, their degrees obtained, teaching experience, their teaching positions, and which department they exercise at the University, and their expertise in working with technology. The second section contains basically questions on the status of on- line education at the university. The questions range from Yes/ No, Likert Scale, multiple choice, and open- ended questions.

Using content analysis and a descriptive research for analyzing the data for the present study, the researchers relied on interpreting the data to find out how online learning was implemented in Algerian universities. In addition, data of the present research served valid to make recommendations for improving online learning in Algerian universities in the future.

5. Results and discussion

5.1. Students' questionnaire results

Table 1: Number of online courses taken at the university.

Online courses at the university	0- 3	3- 5	5- 10	<10
	37%	27%	13%	23%

Table 2: Students' perspective of online education.

Distance learning.	25%
Using the Internet to obtain information.	27%
Learning without a teacher.	14%
Reading e-books.	0%
Reading the lessons on the websites.	17%
Watching the lessons visible (video).	14%
Sending the lessons to the e-mail	0%
Listening to the lessons phonetically.	0%
Education via the Internet.	3%

Table 3: Teachers' ability to adapt to online education.

Teachers' ability to adapt to online education	Yes	No
	46%	54%

Table 4: The suitability of on-line education methods at the university.

The suitability of on-line education methods	1	2	3	4
	0%	37%	63%	0%

Table 5: Schools ability to online education transition.

Schools ability to online education transition.	Yes	No
	2%	98%

Table 6: eLearning increases productivity compared to traditional education.

eLearning increases productivity compared to traditional education.	Yes	No
	47%	53%

Table 7: Students' motivation to online education.

eLearning increases productivity compared to traditional education.	Yes	No
	47%	53%

Table 8: Barriers to achieving ideal eLearning implementation.

Barriers to achieving ideal eLearning implementation.	Yes	No
	0%	100%

Table 9: Students' and teachers' contact in MOODLE.

Students' and teachers' contact in MOODLE.	Yes	No
	0%	100%

Table 10: Time for online education.

Time for online education.	Yes	No
	11%	89%

Table 11: Students' use of MOODLE.

Students' use of MOODLE.	Yes	No
	4%	96%

Table 12: Educational technology at university.

Ed. Tech. at the university	No difference	No apparent outcomes	Efficient & excellent	Somewhat effective
	54%	46%	0%	0%

Table 13: Students' satisfaction with MOODLE.

Students' satisfaction with MOODLE.	1	2	3	4	5
	0%	41%	25%	34%	0%

5.2. Discussion of the students' questionnaire results:

According to the data in the tables, the number of on- line courses that students have taken vary from 0 to more than 10 hours of on- line study attendance. This can be explained to a number of factors; such as, Internet availability and Internet access in students' locations. i. e. students who live in fully served areas are able to get access to online courses most of the times.

However, students who live in underserved areas find it difficult to get access to online courses most of the times. In addition, Internet debit is a crucial factor which determines Internet access and Internet availability. Within this context, too, students explore technology and use computers for educational purposes from three to more than ten hours per week. Moreover, most of the students spend more than ten hours per week exploring the Internet, since it is a valuable tool for research. Through the Internet, they look for eBooks, articles, tutorial videos, … etc.

In relation to technology use, most of the students use eBooks since they are available online and downloadable. 56% of the students believe that online education is more flexible than normal education because it is enables them to get in touch with their counterparts and their teachers anytime and anywhere. It also provides them with interactivity. However, 66% of the students believe that online education is not better that normal education. This can be explained to the fact that they totally rely on normal education which offers better communication tools with their teachers. Also, they have never experienced online education programs. 46% of the students believe that that teachers are able to adapt to online education since their university offers them with available tools to engage in online education.

Despite the fact that Algerian universities were obliged to rely on online education because of health protocol and confinement policies, 89% of the students agreed that it is not the right time to fully implement online education in the Algerian higher education context. According to them, many obstacles still exist and need to be resolved; such as, the lack of full online infrastructure implementation in the universities, low Internet debit, Internet access and availability, the mastery of educational technology, and online education.

According to these reasons mentioned, 98% of the students believe that schools and universities are not currently able to move to online education. Also, 88 % of the students believe that eLearning does not motivate them for better education for the above reasons cited, and eLearning does not help both teachers and students develop their critical thinking skills. Moreover, 88 % of the students believe that eLearning, unfortunately, does not motivate them for education. Many students from low-income families lack the basic technology they need to study online and proceed with eLearning, including access to a laptop and a reliable broadband connection, along with a quiet place in which to work and complete assessments. However, as Algerian universities

started to gear up to deliver their courses online in time of COVID-19, with social distancing measures continue, students are worried about how they will cope.

As for eLearning effects of developing creative thinking for both teachers and students, 83 % of the students believed that eLearning cannot help both teachers and students develop critical thinking abilities for (1) eLearning cannot build a lot of discussion potentials between students and teachers, (2) no ways to introduce story- telling/ writing into the course, (3) teachers and students are distant from each other's, (4) impossible to plan tasks, or projects for students, and (5) it cannot create scenarios with problems to be solved;

Within this context, 79 % of the students believed that eLearning does not play an important role in improving the quality of teaching. In addition, it does not increase productivity, compared to traditional education. These students believe that they consistently perform worse through online learning than they do in face-to-face classrooms. Therefore, taking online courses increases their likelihood of dropping out, as they assume. As they struggle with feelings of belonging, these students are more likely to drop out of university.

Totally, all students agreed that there exist many barriers for achieving an ideal eLearning. These can be summarized as (1) lack of Internet access to learners, (2) low Internet broadband which hinders learners to use the World Wide Web appropriately, (3) learners are addicted to use social media during online class, which affects, (4) universities need to adopt eLearning gradually, which takes lot of time, (5) lack of computers to most of the learners, and (6) the mastery of technology tools to most of the learners. As the data showed in the above tables, students' answers to online education revealed the following results:

Table 14. Students' statements of on-line education:

Items	Strongly Agree	Agree	Disagree	Strongly Disagree
1	47%	38%	15%	0%
2	41%	49%	10%	0%
3	22%	23%	55%	0%
4	34%	21%	45%	0%
5	40%	60%	0%	0%
6	49%	41%	7%	3%
7	36%	39%	4%	21%
8	50%	50%	0%	0%
9	40%	48%	0%	12%
10	75%	10%	15%	0%
11	79%	11%	0%	10%
12	54%	44%	0%	0%
13	61%	39%	0%	0%
14	59%	41%	0%	0%
15	61%	39%	0%	0%
16	65%	35%	0%	0%
17	27%	48%	25%	0%

19	62%	34%	4%	0%
20	17%	48%	33%	2%
21	19%	31%	41%	9%
22	43%	50%	2%	5%
23	57%	43%	0%	0%
24	22%	40%	33%	5%
25	36%	41%	21%	2%
26	40%	50%	0%	10%

In regard to skills of using the techniques of online education process, all students confirmed that their skills range between advanced (49%) and intermediate skills (51%). In another context, 55% of the students believe that the fact students to be able to move from traditional education to online education is not suitable for all categories, and 45% believe that they are not able for some technical, educational, and pedagogic obstacles.

Since universities implemented MOODLE platform to proceed with online education in time of coronavirus pandemic, 41% believed that satisfied and stated that it was good but needs improvements. 25% stated that it was somewhat acceptable, and 34% believed that it was not satisfactory at all.

Moreover, all the students (100%) confirmed that they did not learn satisfactorily using the MOODLE platform at their universities and were not in contact with their colleagues and teachers for the following reasons: (1) lack of Internet access, (2) lack of motivation, (3) lack of organization in posting lectures, which made students confused, (4) lack of feedback from the part of teachers in the MOODLE platform, and (5) lack of teachers' role.

In stating students' opinions about the advantages and disadvantages that they encountered when using the MOODLE platform at their universities, theses can be summarized as follows:

Advantages	Disadvantages
✚ Offering reliable sources of information and helping teachers to post their lessons in a well secured manner; ✚ Students need just to log on MOODLE in order to have access to lessons and study materials even though being far away from university, and get in touch with teachers; ✚ Protecting students from direct contacts with classmates and people in time of COVID- 19;	✚ Students and teachers do not use the MOODLE platform effectively because of technical problems and the mastery educational technological tools; ✚ The MOODLE platform is badly implemented; ✚ Not available to all students and lack of teachers' feedback; ✚ Lack of motivation and sensibilization; ✚ Lack of guidance from teachers, or help desk organizers.

5.3. Teachers' Questionnaire results

Table 15: Using available technologies MOODLE.

Available technologies in MOODLE.	1	2	3	4	5	6	7	8
	20%	6%	12%	12%	13%	5%	9%	23%

Table 16: Using available technologies MOODLE.

Rating MOODLE	Excellent	Good	Acceptable	Not appropriate
	4%	22%	70%	4%

Table 17: Using online features and services in MOODLE.

Online class discussions	40%
E-mail to, from, between students	78%
Homework assignment & submission	40%
Online testing	5%
Student group tools (discussions, file exchange, email, wikis, blogs, etc.)	46%
Upload documents to students	30%
Link to external web pages	30%
A multimedia asset management (MAM) system- software/hardware that enables storage, annotation, cataloguing, retrieval and distribution of digital assets, such as audio and video streaming	0%
Lecture Capture- recording, storing, and distributing videos of classroom lectures.	14%
Export of recorded sessions to open-systems exchange media (e.g., posting recorded lectures and posting them to Blackboard)	0%

Table 18: Teaching online during COVID- 19.

	0-5	6- 10	11- 15	16- 20	21- 30	31- 40	40 or more
1	58%	17%	17%	0%	0%	0%	8%
2	70%	7%	23%	0%	0%	0%	0%
3	38%	22%	12%	10%	0%	0%	18%
4	30%	25%	25%	20%	0%	0%	0%

5.4. Discussion of the teachers' questionnaire results:

The data in the tables showed that most of the teachers interviewed (41% and 31%) have a period of one to ten years of integrating technology with their teaching activities, which include using PPT in delivering lectures, using visual aids, using YouTube tutorial videos, using emails, … etc. This; in fact, illustrates that teachers succeeded to keep up with technological revolution of the new millennium.

Therefore, using ICTs in both their life activities and teaching activities has been apparent.

85% of the teachers believed that their university offered online courses. In fact, Algerian universities acted accordingly to the Ministry of Higher Education's instruction which ordered all universities to start implementing MOODLE platforms to be fully exploited by teachers and students for delivering online courses.

Unfortunately, 72% of the teachers did not proceed with online teaching, or delivered online lectures to their students. This can be explained to the fact that these teachers lack the mastery of educational technology tools for online teaching/ and learning. In contrast, 28% of the teachers confirmed that they delivered online courses whether at their universities, or at anther.

As for the mastery of technical and educational tools, 68% of the teachers confirmed that they attended IT workshops on online teaching which was provided either their university, or by other institutes. Moreover, 32% of the teachers believed that they were not prepared for delivering online courses because their universities were not prepared, too. They just rushed in the process as the ministry and the university ordered them to do so. As a matter of fact, this is one of the drawbacks of online education in the Algerian context. In addition, students, too, were not fully prepared for online education experience, and received no technical support or IT workshops from their universities.

In delivering online courses to their students via MOODLE platform, teachers confirmed that have used the following online services and features, whether at their universities, or at other universities:

- **Lecture capture- recording, storing, and distributing videos of classroom lectures (14%):** Teachers used lecture capture, with lectures recorded, for distributing resources to students who were either absent from sessions and courses delivered in the MOODLE platform. Teachers assumed that they used lecture capture for three potential streams of capture: (1) audio from the lecture and class discussions, (2) visual resources including slideshows, and (3) video of the classroom. These recordings allowed students to review material they missed, and could help them prepare for exams;
- **Export of recorded sessions to open-systems exchange media (88%):** Although this feature enables both teachers and students to open session recordings in the session recording player, most of the teachers were not able to use it in the MOODLE platform because it was not provided, and most of the teachers interviewed do not master this online technological tool. Few of the teachers who used this online feature assumed that it was available in other universities' online platforms;
- **Online class discussions (40%):** Most of the teachers exchanged online discussions with their students because MOODLE platform, which was provided by their universities, enabled them to do so, either synchronically, or asynchronically. Through online discussions, teachers were able to provide the necessary feedback to their students. Moreover, some of the teachers interviewed believed that online discussions included online supervision;
- **E-mail to, from, between students (78%):** Nearly all the teachers interviewed used to exchange emails with their students. Through emails, both teachers and students exchanged

information, and, on the other hand, students got the needed feedback and help;

- **Homework assignment and submission (40%):** During COVID-19, university teachers, instructors, and administrators had many things in common: homework submission. In fact, conducting homework is a crucial part in students' assessment and evaluation. In time of the coronavirus pandemic, online homework submission was the simplest way for both students and teachers to handle. The teachers who were interviewed believed that their universities enabled them with the opportunity of students' homework assignments submission;
- **Online testing (5%):** Unfortunately, only few of the teachers proceeded with online testing for their students. This can be explained to the fact that not all universities provided this online feature for teachers in the MOODLE platform. The teachers who conducted online testing asserted that they tested their students online in only subjects that needed this online feature; such as, oral skills and phonetics;
- **Student group tools (discussions, file exchange, wikis, blogs, etc.) (46%):** Most of the teachers assumed that they contributed to this online feature. However, using the MOODLE platform, this was only redistricted to teachers- students discussions and students- students discussions, and file exchange between teachers and students;
- **Upload documents and make available to students (40%):** In fact, most of the teachers interviewed assumed that the MOODLE platform implemented by their universities enabled them with this online feature, and helped them to get in touch with their students;
- **Link to external web pages and multimedia asset management (MAM) system (30%):** As a matter of fact, the teachers interviewed confirmed that the MOODLE platform in their universities' websites did not include this online feature. Teachers who used this online feature were available in other universities MOODLE and MOOC platforms.

In relation to the fact whether online learning helped the teaching/ and learning process at their universities, 38% of the teachers interviewed believed that it was ineffective because of lots of technical and organizational problems; such as, Internet broadband connection which was crucial to the success of online courses delivery in the MODDLE platform. Also, because of Internet availability, most of the teachers and students could not get in touch with each other in the MODDLE platform. Within this context, teachers believed that the most effective online methods used in delivering online courses were audio and video learning materials (37%), video- conferencing (30%), and MOODLE and MOOC electronic systems (18%). 70% of the teachers who rated the MOODLE and MOOC electronic systems confirmed that it was inappropriate, whereas 22% believed that it needs more development. Online electronic system lacks many online features, and other technical issues need to be resolved to improve the working mechanism of both systems.

As for using technologies which were available in the MOODLE electronic system, the respondents asserted that they restricted themselves to only *Asynchronous Discussion Forums* (20%), *Instant*

Messaging and Synchronous Chat Tools (12%), *Learning Object Libraries* (12%), *Web- Based Video-conferencing* (23%). In addition, the teachers interviewed believed that only online services/ and features which worked well for them were: *E-mail to, from, and between students* (25%), *Student group tools* (16%), *Upload documents and make available to students* (19%). Accordingly, teachers mastered these online technological tools, and using them appropriately helped them to be in daily touch with their students.

When exploiting and using extensively the MOODLE platform of their universities' websites, the teachers interviewed confirmed that they were familiar in using the following web conference tools: Voice/ or video- conferencing (50%), text chat (35%), document exchange (30%), and real- time communication among participants (20%). Also, in using the web- conferences tools, teachers confirmed that only document change and multicast communications from one sender to many receivers (52%) worked well for them.

In another context, the teachers interviewed, unfortunately, indicated that they received no instructional support at their university for the online course activity, whether in *structuring your course for best online experience* (19%), or *running discussion forums effectively* (12%), structuring learning activities that foster student-faculty interaction (10%), structuring learning activities that foster student-student interaction (15%), *giving students constructive feedback in a timely manner* (12%), ensuring that students understand what it takes to succeed online (22%), structures on how to use MOODLE, ZOOM, or other technological devices for online communication with students (10%).

In teaching online and delivering online courses, most of the teachers interviewed (58%) confirmed that they spent between 0 to 5 hours per week teaching their students using the MOODLE platform during COVID-19. 17 % of the teachers spent from 6 to 10 hours per week, and 8 % spent more than 40 hours, and more, teaching their students using the MOODLE platform during COVID-19. This is because of lots of issues and problems which hindered them to teach their students online. These include the lack of broadband connection, the lack of expertise in using and exploiting technological tools effectively, the non- mastery online technological tools in delivering online courses and teaching online.

In fact, the online learning, through MOODLE platform system provided by the Algerian Higher Education sector in time of COVID- 19 is transformed into a visible, debatable subject. An evaluation of the subject leads to cite both advantages and disadvantages. As for the advantages, it has been found that online education provided university teachers with:

- It is a modern, advanced, necessary and an effective means of education, with the research means and various methods it provides, especially in time; such as, the Coronavirus pandemic, but it must be consistent with modern teaching methods in order to be effective and contribute positively to the sustainable development processes that the LMD education system aims at;
- Easy online communication between teachers and students, on one hand, and, on the other hand, students- students communication through chat, or discussions because of the coronavirus pandemic;
- Sharing files between teachers and students;
- Tracking and supervising students' skills and quarterly activities;

- Providing students with the ability to self-registering, attending, and withdrawing from the course according to time and situation;
- Setting assignments where teachers post links to submit home works and tasks electronically;
- Gaining time and effort and providing both students and teachers;
- Continuous students' follow- up;
- Interaction between teachers and students;
- Easy access to several sources and documents;
- Online education is available anytime and everywhere;
- Providing contribution to the delivery and completion of lessons;
- Providing students with the opportunity to benefit from the lessons by browsing and reviewing them easily;
- The Moodle platform allows providing integrated lessons through the use of many available means; such as, video clips, instant chat, and direct questions, downloading electronic books.

Assessment of the online education through MOODLE electronic system used by Algerian universities reveals that our universities are not yet ready for online and distance education because of the several problems, issues, disadvantages, and shortcomings found in exercising the MOODLE electronic system by both teachers and students. These can be cited as follows:

- It is complicated in some features and practices; students and teachers need training workshops;
- Not all subjects can be taught online using MOODLE electronic system, while others require more face- to- face interaction;
- Most of the teachers did not use MOODLE electronic system. They used personal emails and Facebook, instead, where they posted lots of courses and assignments without details and explanations;
- Lack of Internet access and broadband connection;
- Online learning is not available to all students because of their social status and geographic locations which are underserved;
- Lack of interaction between students and teachers, and interruptions which impede students' interaction;
- The MOODLE electronic system does not allow teachers to post their materials to students because of the small size space available in their MOODLE account;
- Lack of online testing and assessment. Also, the absence of teachers' feedback;
- Lack of IT workshops in the use of technology and online technological tools for both students and teachers;
- Students' inability to comprehend the lessons offered to them because of the lack of face-to- face interaction with teachers;
- The extent to which the teacher is able to encourage students to enter the floor and interact correctly and continuously without interruption.

9. Improving online learning in the Algerian higher education context: Lessons for future implementation and success

While it was necessary for university closures in Algeria during the quarantine to reduce contact between students, online learning electronic systems were set up across the entire universities for large classes. While some faculty members already had competencies in online or remote teaching in (1) live streaming, (2) pre- recorded teaching sessions, (3) facilitating discussions in a digital platform, and (4) providing assessment and receiving feedback, much background preparation still had to be done to ensure academic staff, students, and infrastructure ready for lessons to transition seamlessly into online learning.

- **Establishing online learning as a basic approach**

Since flexibility was needed to ensure different learning outcomes to be achieved in different programmes, consistency across the university was important during the crisis of COVID- 19. It should be taken into consideration that classes with more than 40 students have to be switched to online learning. However, not all subjects have to be converted into online learning. Some classes that needed to remain face-to-face, such as laboratory sessions, have to be broken into smaller groups.

- **Ensuring learning outcomes**

It should be emphasized that online electronic systems must be viewed as learning environments that enable effective learning to take place. Also, they are important to engage learners. These electronic systems should provide opportunities for teachers to upload lecture recordings, conduct live streaming classes, and use polls and quizzes to engage learners, as a part for the positive learning outcomes.

- **Remaining student-centric**

Because there were students who had contact with Covid-19 patients, it was important to consider the ones who could not come to campus. Implementing the quarantine during the time of the crisis was to prevent students' contact to avoid COVID- 19 cases in the university environment. Therefore, taking universities' closures into account, the academic staff should provide support to students with alternative learning plans and make arrangements to ensure they receive the learning content and have questions answered. With technology available, it allows them to participate in discussions with their teachers.

- **Providing clear feedback through online electronic system**

It is important to understand students' concerns while engaging in online learning. Students' feedback should be consolidated and communicated to all teaching staff. Common concerns included effectiveness of online lectures, changes in assessment, and self- discipline when learning online. Therefore, to improve the online learning experience, online meetings should be conducted with programme directors and teaching staff to share experiences and rectify common mistakes.

More communication channels are important to ensure the fact that regardless of the physical absence of teachers, students, and programme directors, concerns and experiences have to be shared. Moreover, communication is also important to check in with students with special needs and those who are academically weak.

- **Making trainings and IT workshops available**

In order for the online learning to succeed in the Algerian higher education context, it is important to create many types of trainings and IT workshops for lecturers to provide online learning. The issues should cover: (1) how to create narrated slides, (2) how to run effective live streaming classes, (3) how to design alternative assessments, and (4) the use of online proctoring tools for assessments. In addition to teaching staff, students should also be provided with guides to use the technological online tools so as to get themselves ready to learn in an online environment.

- **The use of hybrid models in online learning**

Hybrid models can be used in online learning environments. However, one important point to remember is timetabling. If students are expected to participate in live streaming online environments, they need quiet locations to do so. If individual lecturers are to run hybrid classes, it takes extra skills and efforts to ensure that whatever is communicated in the physical environment is clearly articulated to those at home. Unless the staff member has a device; such as, a portable microphone that allows them to walk around and project his voices through the laptop, students can struggle to hear what is being said. Presetting certain features in online learning tools can help prevent several problems. Zoom, for example, has features that can be preset; such as, auto-mute upon entry or auto-record.

10. Conclusions and recommendations

The present paper has dealt with the online learning system implemented by the Algerian universities to provide online courses in time of the coronavirus pandemic. Since the electronic learning system was totally reliable during COVID- 19 for the first time in the Algerian higher education context, it was necessary to analyze the experience, rectify the mistakes, and improve the practice. As a matter of fact, the academic staff are aware of what online learning means. i. e. A teaching/ and learning procedure which relies on the use of several technological tools. However, they feel that they are still not ready for engaging totally in the online learning electronic system because of the lack of solid infrastructure, the lack of effective training and IT workshops for teachers, and other obstacles and related issues. Therefore, the following recommendations should be taken into consideration for better implementation of online learning electronic system in the Algerian higher education context:

- The need to interact and deal with universities in the homeland and universities of other countries that have succeeded in using these platforms and electronic media in the teaching and learning processes;
- The need for intellectual protection for teachers' lessons and materials;
- Establishing training courses for teachers on the proper use of electronic platforms and media, and modern teaching methods that use these media and interactions;
- Organizing students according to their academic level, special needs, and to the learning outcomes reached;
- Increasing Internet broadband connection;
- Facilitating access for students to the Moodle online learning electronic system;

- Making improvements in the examination system: Adding protocols to prevent students from leaving, or switching the exam window, and adding some webcams monitoring to detect students' activities while keeping their privacy;
- Using multiple media to communicate with students through audio and video;
- Providing grants to academic staff who use the Moodle electronic system to increase competition and creativity among academic staff;

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