

## **THE EFFECTIVENESS OF E-LEARNING ADOPTION ON THE EDUCATION SYSTEM DURING THE COVID-19**

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### **ABSTRACT**

Around the world, the COVID-19 outbreak has caused destruction. Governments all across the world have temporarily closed educational institutions to stop the coronavirus's spread. As face-to-face instruction has been phased out in favor of online classrooms, online learning has grown, allowing students to continue their education. The sudden transition from in-person to online learning has created a number of problems for students, teachers, administrators, and education leaders. Based on previously published sources, the first step of this research is to attempt to define the many terms used to characterize online learning. After that, it examines the important problems brought on by the widespread use of online learning during the epidemic and several academics' suggestions for enhancing its effectiveness.

***Keywords:*** *E-learning, Education System*

## **1. INTRODUCTION**

The COVID-19 epidemic has wreaked havoc on the world, impacting nearly every element of human life [1], [2]. The temporary shutdown of educational institutions throughout the world is a clear illustration of the disruption created by COVID19 [3], [4]. Face-to-face classrooms have been shifted online to assure continuity of education for students, ushering in a new era of online learning in which lectures, lessons, and other learning activities are performed remotely [1], [3], [5]. Online learning is not new in industrialized cultures. Students are often familiar with different components of online learning through the usage of Moodle, Blackboard, and other learning monitoring systems because it is part of the school curriculum [6], [7]. Online learning, on the other hand, is not widespread in poor countries like Cambodia, and there are several challenges with establishing this learning modality [8], [9].

The goal of education is to develop a person into a perfect individual. Education paves the route for them to achieve their goals [10]. Education also aids in the instillation of societal obligations. Learning is at the heart of education [11], [12]. Learning is the process of obtaining new information or abilities via study, practice, or instruction [13]. Any strange accident that occurs anywhere in the globe has an influence on schooling [14]–[16]. As a result, the COVID 19 pandemic has left its mark on schooling [17], [18]. The global spread of this hazardous virus has compelled educational institutions to close in order to stop the infection's transmission [19], [20]. During the lockdown, this occurrence caused education experts to consider other teaching approaches [21]. As a result, it prepares the way for web-based, e-learning [22], or online learning [23]–[25]. Learning has entered the digital realm in today's environment [26]. In this scenario, teachers and pupils are digitally connected [27]. During the COVID-19 Pandemic, this research will aid in determining students' opinions regarding e-learning [28]–[30].

This research is specifically aimed for students, universities, researchers and schools who wanted to understand more about the role of e-learning during the epidemic. It may be a valuable learning tool at educational institutions to use digital technology to improve students' knowledge and abilities. For the sake of pupils, the government and educational departments must create improved eLearning infrastructure.

## **2. LITERATURE REVIEW**

E-Learning is a new way to learn and interact that makes use of high-speed networks and new computing capabilities [31]–[33]. It allows you to improve your talents, study from the comfort of your own home, and collaborate with people all around the world [27], [34]–[36]. This new technology have changed the way people learn [37], as well as the procedures and surroundings in which they learn. E-learning, according to the [38]–[40] is defined as the use of web-based technological tools in conjunction with resources available on CDs, the internet [41], video and audiotapes [41], [42], and television broadcasts [43], [44]. The basic goal of eLearning, regardless of the method it employs [45], is to present users with a learning opportunity [46]–[49]. Looks for a single definition of e-learning, which does not exist owing to the various viewpoints and ongoing growth of the term [50]. E-Learning has been discovered to be a synthesis of several fields, including data communication [51], computer science, and education [52], [53]. As a result, e-learning must be defined broadly. E-learning, according to the author, is much more than just technology [54], [55].

### *2.1. E-learning during the pandemic*

The epidemic of COVID-19 forced the closure of educational institutions all across the world [56]. For governments and academic institutions [57], continuing the learning process through e-learning and online classrooms is a significant problem [58]–[60]. Lack of technical assistance, awareness, preparedness, skills, resource materials, and infrastructure [61], according to the author [62], [63], are all barriers to e-learning implementation [64], [65]. The effectiveness of e-learning programs is partly dependent on trust concerns, reluctance to change, and budgetary issues.

### *2.2. Types of e-Learning*

#### *2.2.1. Simultaneous Delivery*

Lecturers and students (learners) from different schools, such as colleges, institutes, and schools, connect and engage directly in real time in this kind [66]–[68]. This mode, often known as synchronous, is used to deliver remote learning and some training classes [69], [70].

#### *2.2.2. Asynchronous Delivery*

The lecturer in this case makes the course information available on videotapes or transfers it to a computer or other device [60], [71]. On the other hand, the student (receiver) receives the content at a later date that is convenient for him [72], [73].

### *2.3. Effectiveness and Adoption of e-Learning among the Learners and Teachers*

Explains why ICT has been so popular in recent years and will continue to do so in the future [74], [75]. The authors claim that comparing the effectiveness of e-Learning to that of a regular classroom is an old study issue [76], [77]. The focus should now be on improving and improving the effectiveness of this form of learning [78]–[82]. Future research and developments should adapt the e-learning system design model to overcome current limitations and broaden the usage and adoption of "online teaching" across cultural and geographical divides [83]–[85]. The elements that influence the adoption of e-learning systems are examined [86], and it is discovered that adoption is influenced by "relative advantages, trial ability, and academic specialty [87]–[89]." The adoption rate of new systems and technologies increases when there is a positive relative benefit [90]–[92]. If instructors are given the opportunity to try out the tools and technologies before they are implemented, they will feel more confidence, and so the adoption rate will increase [93].

E-readiness is a vital criterion for the success of e-learning programs in higher education [94]. In [95]–[97] the author examines e-readiness criteria and how to enhance them to make e-learning more successful [98], [99]. The most important aspects impacting eLearning preparedness, according to the study, are skills and attitudes [100]. [101]–[105] stated that students may find it challenging to communicate with other students, professors, and administration in an online class [106]. Some pupils separate themselves or feel lonely in some way [107]–[109]. They don't approach anyone and beg for help on their own [110]–[112]. Because of the lack of face-to-face connection and nonverbal communication, students in an online classroom have difficulty interacting and collaborating [113]–[115]. Students do not believe they are truly linked [116]. While it comes to the benefits, curriculum may be built with a specific student in mind when preparing for online learning programs [78], [117].

### *2.4. Teaching Staff Training vs. Effect on University and High School Students' Trust in Online Education*

The COVID-19 epidemic has wreaked havoc on the educational system, particularly in academic institutions [118], [119] and, in particular, on teaching staff the most valuable resource in any educational institution who are dealing with financial, physical, and emotional issues [120], [121].

The teaching staff uses virtual teaching approaches that are unaffected by the increased demands imposed by the coronavirus epidemic [122]–[125]. Every academic or pre-academic educational institution has the resources to create a virtual class that functions as an extension of the actual one [126], [127]. The capacity of the teaching staff to adapt to changing needs, on the other hand, is highly influenced by the development of working abilities with new technologies [128]–[131]. Teachers who have access to distant learning courses and digital materials have a lower risk of maledicting to the challenges posed by online courses and are more confident in their ability to continue teaching in the new environment [132], [133]. The easiest approach for teaching staff in the context of the COVID-19 epidemic is to teach their lessons through video, either live or remotely transmitted.

### *2.5. General Research Model*



*Figure 1: Conceptual Research Model*

## **3. EMPIRICAL ANALYSIS**

### *3.1. Willingness*

The information revolution, as well as the global availability of technology, has had a significant influence on modern education. It is crucial in the development of all new pedagogical abilities in education at all levels. Wherever you need to study, there are a plethora of resources available online. Students can not only use digital devices and gadgets for amusement, but they can also use

them to participate in learning activities. Table-1 depicts students' desire to participate in e-learning in this setting.

Table-1: Student's willingness towards e-learning

<b>Classification</b>	<b>Respondents</b>	<b>Percentage</b>
Yes	144	82.29
No	9	5.14
Maybe	22	12.57
Total	175	100

Around 82.29 percent of the 175 students polled said they were eager to study through e-sources. Approximately 12.57 percent of them stated that they are studying from e-sources since they have no other options. Since courses and educational institutions are expected to close as a result of Corona, students have relied only on e-learning. The vast majority of the institutions where students took part in this study encouraged students to learn using e-sources. Because of a lack of connectivity, just 5.14 percent of them were unwilling to learn. Table 1 shows that the majority of respondents are interested in learning through e-based learning.

### *3.2.Improvement of self-study skills*

After globalization, education has grown increasingly related with digital and mobile paced, today's learners have quite different expectations than in the past. Students have expressed a need for learning resources that can be accessed over the internet on mobile phones and PCs. The fundamental benefit of e-learning is that students may learn at their own pace and convenience. Table-2 depicts the quality of students' self-study skills using e-learning in this setting.

Table-2: E-learning improves your self-study skill

<b>Classification</b>	<b>Respondents</b>	<b>Percentage</b>
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Yes	145	82.86
No	8	4.57
Maybe	22	12.57
Total	175	100

Around 82.86 percent of the 175 students polled said that e-learning had helped them enhance their self-study skills. Approximately 12.57 percent of them stated that they are studying from e-sources since they have no other options. Since courses and educational institutions are expected to close as a result of Corona, students have relied only on e-learning. The vast majority of the institutions where students took part in this study encouraged students to learn using e-sources. Only 4.57 percent of them believed that using an e-source alone may help them enhance their self-study skills. As shown in Table 2, the percent of people believe that e-based learning enhances their self-study skills.

### 3.3. Technical issues

E-learning requires a high-bandwidth internet connection at all times. Because of a lack of connection and a severe power constraint, it does not always succeed. Due to the absence of infrastructure that online courses require, e-learning is much worse in rural regions compared to metropolitan areas, and as a result, students fail to attend their virtual lessons. Table-3 summarizes the technological aspects of e-learning in this context.

Classification	Respondents	Percentage
Yes	47	26.86
No	94	53.71
Maybe	34	19.43
Total	174	100

Approximately 53.71 percent of the 175 students polled said they had no such technical challenges while e-learning. Around 26.86 percent of them have had technical difficulties. Nearly 19.34 percent of them said that inadequate internet connections make it difficult to follow the lessons at times. Video lectures from Zoom and other programs, in particular, have a large number of technical setups, which might be difficult to manage if the listener is unfamiliar with the technology. Table 2 shows that when it comes to technological challenges in e-learning, the majority of respondents say no.

## **4. DISCUSSION**

### *4.1. Distance Learning Goals*

Distance learning, in keeping with the overall goals of education, attempts to deliver considerably more it promises:

- Educational opportunities for people who are denied them at all levels for a variety of reasons, including political, geographic, economic, and social factors, to mention a few. The primary goal of distance education is to help ambitious students develop and educate themselves in order to better their educational, social, and professional levels.
- Creating appropriate educational environments to meet and cater to the requirements of learners in order to promote lifelong learning.
- Offering learners a flexible schedule to accommodate their own needs and situations, such as housewives, farmers, industrialists, and employee
- Reinventing education while being consistent with the offering of information and the current era's scientific and technological development. Individuals must be able to gain competency via continual education and self-learning under this new educational approach. The concept of 'anytime, anywhere' learning is a necessity of the time, allowing students to learn whenever and wherever they choose, using whatever technology they like, as opposed to the conventional classroom and lecture hall atmosphere.
- Introducing new specializations that society requires but that existing college institutions do not permit or support.



- Providing cultural activities and information to all residents. The advantages of information and communication technology are not confined to students; they are available to all citizens. It is feasible because of current communication technologies such as television and satellites, which may be used to transmit instructional programs [134].

#### *4.2. Elements of Distance Learning*

To begin, distant learning necessitates the use of the internet to permit contact with the student or learner who is present and accountable for tracking all educational content. To accomplish this, specially built sites and portals that follow an acceptable methodology can be employed. These websites and portals should explain the content in an easy-to-understand way in order to be useful. Both the instructor and the student can have access to discussion forums, both direct and indirect. Finally, the instructor who has been tasked with monitoring and evaluating the student's work must be available and offer the student the grades he deserves [135].

#### *4.3. Distance Learning Methods*

There are several distance learning approaches, each of which focuses on a different stage of the educational engagement as remote learning evolves. Information and communication technology is advancing at a breakneck speed. This growth and progress is evident in its growing educational applications. New and more effective distant learning approaches are being developed [40]. The following are some of the most tried and true approaches for distant learning:

#### *4.4. Multimedia Style*

Written communication is the foundation of this strategy. Learners employ audio and video recordings on CDs, as well as phone and radio broadcasting, to supplement the written content delivered to them. Learners are given educational references, study aids, and systematic literature to read. Multimedia style may be used not just to promote distant learning on its own, but it can also be used to support other techniques [136].

#### *4.5. Video Conferencing Method*

This strategy is identical to what is taught in a typical classroom. Learners, on the other hand, are separated from their teachers and colleagues by geography and are linked via high-speed communication channels. The teacher can be seen and heard by everybody. They have the ability to ask direct inquiries. They are able to actively participate in a conversation and interact with the

teacher's topic. However, in order to ensure that everything goes well and according to plan, the video conferencing approach necessitates previous planning and preparation and takes longer than a regular class lecture. It also necessitates the use of scientific materials and media. Teachers should be taught how to pique students' interest [137].

#### *4.6. Advantages and Disadvantages*

As a result of the COVID-19 outbreak, educational activities in the classroom have been temporarily halted. Students in their last years of high school and university are in an unusual scenario that prevents them from seeing the future clearly. The length of the epidemic and its effects on everyday living, as well as expenses and other financial concerns, can have a direct impact on university and high school students' ability to continue their studies. The vulnerability created by disruptions in the academic environment is concerning. Undergraduate and postgraduate students' situations have created adverse conditions, such as the need to drop out of school. The pandemic crisis generated a sense of exclusion, highlighting an image of unfairness in the academic education system [138].

By increasing opportunities for education, turning student populations, and inspiring the creation of new teaching techniques, online learning has the potential to transform the education system, making learning more accurate, effective, and less hectic for both instructors and students. Although studies show that online and conventional education provide equivalent learning outcomes, it is also acknowledged that online learning is viewed to be less interactive than classroom learning. Fortune, Spielman, and Pangelinan found no statistically significant difference in different learners between students taking online courses and students taking courses in person in a research including 156 students.

Due to enhanced flexibility and learning possibilities, online education has demonstrated a variety of benefits, including simple access to specialists, exposure to educational environments, a diverse range of course kinds, and participation in student communities. There are a number of drawbacks to online education, including challenges with internet surfing, computer compatibility, and technological concerns.

Students had to alter their daily schedules during the start of the COVID-19 epidemic to adjust to a state of isolation. Those studying abroad were forced to return home, but many of them were unable to do so owing to airport and border closures. Students' socio-emotional balance worsened

as a result of their lack of socialization, especially in young people with pre-existing difficulties of this sort. The major repercussions of isolation, according to students, were anxiety and sadness[139].

The degree to which students feel comfortable utilizing the internet and their overall pleasure with the online experience has been found to have a substantial link. According to research, developments in information technology and the growth of computers have a favorable impact on university/high school students' attitudes toward studying in today's educational contexts. In the context of education, mobile devices and accessible web access have transformed the mode of communication. By motivating and immersing students learning, social media sites can bring about changes in teaching techniques and yield benefits.

During Romania's isolation, parents were responsible for ensuring their children's opportunities for participation in online learning activities offered by their educational institutions. To take an online course, you'll need a laptop, a smartphone, or a tablet, as well as internet connectivity. The students' families or educational institutions may own this technology. The parents or legal guardians are solely responsible for any damage to leased technical and communication equipment. Platforms, digital instructional tools, and virtual libraries are all available for free.

## **5. CONCLUSION**

Information and communication technology (ICT) is a relatively recent instrument in education and learning, particularly in developing countries such as Jordan. Because of the extraordinary crisis and threat to public health presented by the COVID-19 virus, which resulted in national lockdowns, the great majority of higher educational institutions throughout the world were forced to transition to e-learning to ensure the teaching-learning process was not disrupted. There are both undergraduate and graduate programs that are completely delivered electronically (e.g. distance learning, online learning, or a combination of both) in many countries around the world, especially in developed countries, so eLearning programs are not new to the teaching learning process.

As a result, making the shift to e-learning during the COVID-19 pandemic may not be difficult for these nations, and it may be more welcomed and received by both instructors and students. However, as this study discovered, the move to e-learning may not be well embraced and

implemented in other nations, particularly emerging ones such as Jordan, where the technology infrastructure is not yet fully built. Despite the fact that the majority of student respondents in this survey were happy with the e-learning experience, they did describe a variety of issues encountered during the eLearning process, the majority of which were technical in nature. The immaturity of electrical technology in Jordan in comparison to more sophisticated countries may have produced such technical issues. In many rural and distant sections of the nation, for example, a functional internet network might not be accessible. In addition, as revealed by student respondents in this survey, both teachers and students in Jordan are unfamiliar with e-learning and remote learning, which might be another issue impacting the efficacy of e-learning.

This conclusion might be explained by variations in performance expectations (for example, stronger integration of cognitive processes) and learning climate/social milieu between medical school and other university schools. In addition, as compared to female students, male students adopted e-learning more readily and patiently and gave the experience a higher rating. This might be due to female students having less exposure to and usage of digital tools than male pupils. Furthermore, female students may have had higher anxiety as a result of the abrupt transition from traditional classroom instruction to e-learning, which may have harmed their performance and overall happiness with the experience.

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