


# Factors Influencing the Acceptance and Adoption of Online Learning in Response to the COVID-19 Pandemic

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## ABSTRACT

Educational systems worldwide have been forced into shifting to online learning during COVID-19 pandemic. This decision faced diverse challenges, especially in underdeveloped countries that still use traditional teaching methods, with minimal or no integrated technology, and no guidance in the literature. This study explores factors, challenges, and adaptation initiatives that might underlie the success and failure of abrupt shifting and accepting online learning systems. To explore the acceptance of online learning under these extreme circumstances, the reactions of Kuwait educational institutions to COVID-19 were collected and analyzed. A framework was utilized, and a questionnaire developed to enable quantitative analysis of these data. In total, 4,024 responses were gathered from instructors and students with acceptable reliability. Findings from the statistical analysis unveiled specific acceptance facts relevant to the crisis within its environment. This study establishes the utility of this framework for researchers to synthesize users' acceptance of online learning systems.

## KEYWORDS

Acceptance, COVID-19 Pandemic, Distance Learning, E-Learning, Education, Framework, Online Learning, Readiness

## INTRODUCTION

The emerging COVID-19 results from a new family of coronavirus that had not previously been identified in humans and was first detected in Wuhan, China. Coronaviruses found in animals such as rats, snakes, bats, camels, chickens, swine, and dogs have been transmitted to humans. However, a new coronavirus was initially detected in bats and named bat-SARS-Cov-2, identified in 84% of Chinese horseshoe bats (Wang, Horby, Hayden, & Gao, 2020). Coronaviruses are a large family of viruses identified as an infectious disease known to cause illnesses such as severe acute respiratory syndrome (SARS) and categorized by the WHO as a global pandemic (World Health Organization,

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2020). Worldwide health measures have been enforced, such as wearing masks, social distancing, continuous sanitation, and many countries have resolved to partial/total quarantine.

In a chaotic era, such as COVID-19, where learners and faculty sharing space is impossible, the advancement of technology-enabled educational institutions to transition to online learning is required. However, not all educational institutions managed this transition in an exemplary manner due to the lack of guidance in the literature. Online education includes many terms used in the literature, such as e-learning, online learning, flexible learning, virtual learning, blended learning, and technology-enhanced learning (Albasayna, 2016). E-learning requires using hardware, software, and telecommunication technologies to support and manage teaching and learning activities in or outside of the classroom. However, online learning is to be involved in the learning experience through an internet connection. Online learning is a combination of blended learning and e-learning as it generally uses learning management systems (LMS), or tools like Microsoft Teams, Zoom, or cloud meetings, etc. Technology-enhanced learning is a continuously developing field because technology is dynamic, and the immediate transition to online learning during a crisis is directly affected by this dynamic state.

The State of Kuwait is a developing country and, even before the COVID-19 crisis, the use of ICTs and the implementation of e-learning was still in its infancy. The education system is still a traditional system based on face-to-face interactions and classroom learning activities (Alkharang, 2014; Al-Hunaiyyan, Al-Hajri, & Al-Sharhan, 2019; Al-Hunaiyyan, Alhajri, & Al-Sharhan, 2018). Many attempts and initiatives were introduced to support online learning, and many of them failed. Kuwait, like many others, has started the use of e-learning in public educational institutions, but, according to Alkharang (2014), it is slipping behind other countries despite its high standard of living due to relatively low innovation and capabilities. Kuwait responded quickly and closed schools, colleges, and universities on March 1, 2020, to control the spread of COVID-19. In response to banning face-to-face teaching, educational authorities in Kuwait discussed the issue of maintaining continuity of learning in which online learning was an option.

This study addresses the acceptance of instructors/students to online learning during the COVID-19 crisis. The research is a pioneer among its field in Kuwait, as no investigation has been conducted at the time of writing. The research objectives are to understand the factors that influence the sudden acceptance and adoption of online learning in a crisis and to shed light on the opportunities, challenges, and perspectives of instructors/students. Therefore, this research seeks to address the following questions: What are instructors'/students' perceptions of the effectiveness of online learning to maintain the continuity of the academic year? What are the most convenient teaching practices for online learning? Are instructors/students ready to use online learning because of the COVID-19 crisis? What are the challenges and barriers affecting the acceptance and adoption of online learning? To address the research objectives and answer the research questions, a framework that involves a questionnaire was developed, and statistical analysis was used to analyze the results. The framework was administered in Kuwait's educational environment, where data were collected from instructors/students at various institutions.

This article is structured as follows: literature review, description of the methodology, results and discussion, and the final section concludes and proposes possible future directions.

## **LITERATURE REVIEW**

Pandemics, natural disasters, wars, riots, and demonstrations take place around the globe, not only influencing health and economy but also affecting education. SARS outbreak in 2003 affected many countries in Asia in which teaching in schools was banned in China (Huang, Liu, Tlili, Yang, & Wang, 2020). Similarly, in April 2009, H1N1 known as the "swine flu" spread quickly to 74 countries, which was declared by WHO that the virus is a global pandemic, causing schools and colleges closures in countries such as China, France, Serbia, Thailand, UK, and USA (UNESCO, 2020). The

anti-government protests and violence in Hong Kong in 2019 forced colleges and universities to switch to online education, replacing traditional learning a few weeks before the COVID-19 crisis (Bennett, Barber, & Laquinto, 2020). The novel Coronavirus (COVID-19) spread rapidly worldwide and addressed by WHO as a pandemic, forcing countries to take strategic measures to control the spread of the virus, which has disrupted the normal functioning of schools and universities. As of mid-May 2020, more than 4.5 million confirmed COVID-19 cases were reported, among them, more than 300,000 deaths. As weeks and weeks passed and no immediate relief from the virus was on the horizon, many educational institutions resorted to technology and online learning.

As the COVID-19 pandemic progressed, several governments introduced new measures that restrict the number of people gathering in public places. The regular functioning of schools and universities has been interrupted by these initiatives. According to the UNESCO, by April 27, 186 countries worldwide had closed their schools, which affected over 1.2 billion learners (UNESCO, 2020). As mentioned by Lau et al. (2020), a large number of educational institutions worldwide have responded and explored innovative ways for instructors and students to continue learning and launched mandatory online classes to pursue education for the rest of the academic year. According to Lieberman (2020), several educational institutions and private companies have begun helping schools and universities to offer virtual instruction to students, and many provided educational resources through a national and international online database. Therefore, online learning has become a viable option for many educational institutions worldwide, in which instructors and students suddenly found themselves forced in most countries to use online learning because of the outbreak of COVID-19. How these institutions accepted the transformation to total online learning in this crisis is the focus of researchers, as diverse factors essential to acceptance have been identified. The following literature presents the most recent dimensions linked to online learning acceptance and perceptions.

### **Online Learning Perceptions**

Acceptance and perceptions of online learning have been discussed in the literature. Some studies were conducted to investigate perceptions and acceptance of online learning during the COVID-19 crisis. The study of Demuyakor (2020) aimed to investigate international HE students' perceptions of online learning in China during the COVID-19 crisis. The findings reveal that the implementation of online learning programs was very well accepted by the students; however, they expressed a high cost of participating in online learning. Similarly, Girik Allo (2020) examined learners' perception of online learning as a response to the COVID-19 pandemic. Although the findings concluded that learners have a positive perception of online learning, the study highlighted challenges such as online learning implementation, internet access, and financial issues. Yamin (2020) conducted a survey to elucidate the opinion of 1,045 Indonesian HE students about shifting to online learning as a response to the COVID-19 crisis. Results revealed that 40.3% of student respondents were satisfied with online learning, as it is flexible and financially efficient. However, 53.7% of the students said online learning created frustration due to network problems.

Furthermore, Bączek et al. (2020) surveyed Polish medical students to collect their opinions of online learning as a result of the coursework disruption caused by the COVID-19 pandemic. The online questionnaire was distributed to 804 students for the study. Several advantages were reported, such as studying at home (69%), the accessibility to online materials (69%), and learning anytime/anywhere (64%). Perception indicates online acceptance; however, online collaborative learning (OCL) is another dimension of equal importance.

### **Online Collaborative Learning (OCL)**

The advancement of new technologies has changed traditional classroom practices and introduced innovative teaching strategies such as virtual reality classes, interactive boards, multimedia-based learning resources, and interactive curriculum. Therefore, educational institutions adapted technology-enhanced methods for the advancement of education (Harasim, 2017). Technology-enhanced learning

(TEL) can be integrated within the classrooms, which is known as blended learning models and can be used to provide remote access as a part of the learning environment based on distance learning approaches. Five technology-supported pedagogic models associated with gaming, virtual laboratories, collaborative projects, real-time assessments, and skills-based assessments were discussed to explain the pedagogical aspects and benefits (OECD, 2016). Online learning transforms traditional learning environments and creates new and effective learning practices in both synchronous and asynchronous modes (Shahabadia & Uplaneb, 2015). Littlefield (2018) defines synchronous learning as a structured learning strategy, where the class is scheduled ahead of time. Hence, instructors and students join live virtual classroom settings, so they take advantage of real-time interactions. On the other hand, asynchronous learning provides an environment in which students can learn anytime, anywhere, and can learn and interact with instructors and other students (Littlefield, 2018). The advancements of technologies assisted developers in providing open and flexible learning tools that encourage engaged and collaborative learning (Zhang, Burgos, & Dawson, 2019). Once these tools are recognized and integrated, instructors and students need to be ready to use them.

### **Instructors' and Students' Readiness**

Implementing e-learning systems imposes a modern technological environment in educational institutions, which brings many challenges confronting instructors' and students' readiness. Online learning requires the instructor and the student to be sufficiently competent to shift to online teaching and learning. An instructional competency model was developed by Al-Hunaiyyan et al. (2012) to enable instructors to be efficient in the e-learning environment. The model is constructed based on six competency areas: knowledge and cultural competencies, technical competencies; practical competencies; behavioral and social competencies; supervision and planning competencies; and instructional design competencies. Martin et al. (2019) developed a Faculty Readiness model to Teach Online (FRTO) based on theoretical models and previous research. Studies such as Downing and Dyment (2013) and Gay (2016) discuss issues related to the instructor's preparations and assessment of teachers' readiness. Furthermore, Chi (2015) developed a Readiness To Teach Online (RTTO) Scale with 33 items covering five categories that included student engagement, technology support, course development, assessment, and evaluation criteria. Readiness is a vital dimension to online acceptance, and it logically leads to the need to identify challenges and barriers as an additional dimension.

### **Challenges and Barriers to Online Learning Implementation**

Online learning implementation imposes challenges and barriers that should be considered. O'Doherty et al. (2018) reviewed the literature on known barriers that face online learning such as infrastructure, users' skills, time, and poor communication, proposing solutions to those barriers. An investigation was carried out by Parvin (2016) that focus on barriers in e-learning adoption. The questionnaire was designed with 53 questions for instructors and 43 questions for students, which was based on a literature review of previous studies. The questionnaire was divided into three sections: access to technology resources, perception of e-learning, learning, and teaching methods. In addition, Al-Hunaiyyan et al. (2018) discussed the challenges and investigated barriers affecting the acceptance of mobile learning in Kuwait using a questionnaire that examined several factors. Banning face-to-face interaction motivated Baticulon et al. (2020) to conduct a study to identify barriers to online learning from the perspective of students in the Philippines. The online questionnaire was sent to 3,670 medical students, and the resultant barriers were classified into five categories: institutional, technological, individual, domestic, and community barriers. The most frequently encountered difficulties were adjusting to the learning styles, performing duties from home, and inadequate communication between instructors and students (Baticulon, 2020). Furthermore, the findings of Bączek et al. (2020) highlight barriers to online learning implementation during the COVID-19 crisis such as lack of interactions with patients (70%) and technical problems with ICT devices (54%).

## METHODOLOGY

### Framework Development

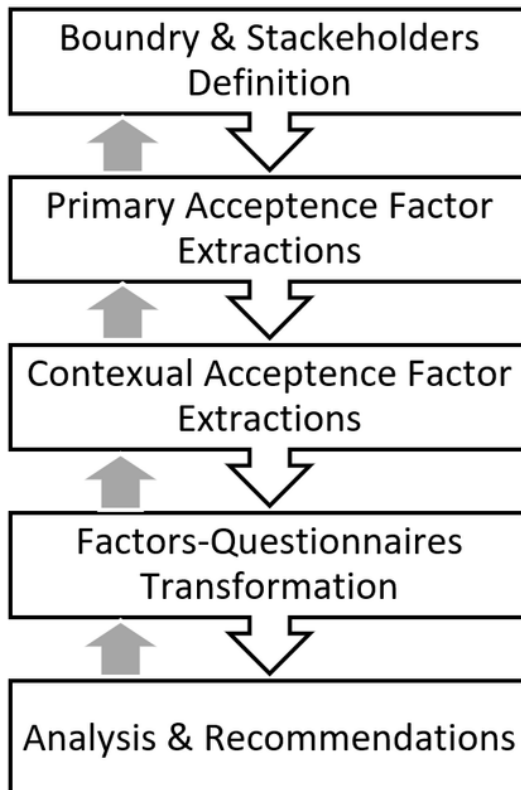
A framework was developed to explore instructors' and students' perceptions of online learning acceptance, in the hope of identifying critical factors that influence the acceptance and adoption of online learning in the context of the COVID-19 crisis. These factors and challenges might be the reason for the failure and success of the adoption of online learning systems.

The framework follows the recommendations of systems thinking (Elias & Cavana, 2011; Raza, Siddiqui, & Standing). The framework starts by identifying a system and defining both its boundary and stakeholders. Using Kuwait educational institutions as the system in focus. Two main stakeholders of high priority, urgency, and significance were identified, namely instructors and students (Figure 1).

1. Boundary and Stakeholders Definition
2. Primary Acceptance Factors Extraction (literature)
3. Contextual Acceptance Factors Extraction (environment)
4. Factors-Questionnaire Transformation
5. Analysis and Recommendations

The second phase encompasses a review of current issues related to the impact of the newly emerged coronavirus COVID-19 on education worldwide; this will help to shed light on e-learning adoption as a result of schools' and universities' closure and findings primarily acceptance factors.

Figure 1. Framework development



To investigate the acceptance of online learning, there is a need to examine the dimensions that define it. Previous studies that link online acceptance with dimensions are presented in the section of the literature review section, with the focus on the most lately mentioned. The third phase involves contextual factors affecting online acceptance among instructors and students. Factors extracted from the literature are grounded by actual happenings of the surrounding environment. The acceptance dimensions are grounded to the environment as they represent the reflection of opinions of Kuwaiti officials, academicians, students, and parents. A table is constructed that shows each dimension with its link to references of media narrative extractions. The fourth phase transforms the pool of factors to questionnaire statements, evaluating its reliability and possible validity. The fifth and final phase includes statistical analysis and reasonable recommendations.

## **Environmental Setting**

In response to banning face-to-face teaching, educational authorities in Kuwait discussed the issue of maintaining continuity of learning in which online learning was an option. Kuwaiti authorities were undecided about switching to online learning as a measure to control COVID-19, which raised arguments between proponents and doubters. In Kuwait, enforcing online learning was a challenge for government educational institutions because of a lack of readiness, proper infrastructure, and lack of Arabic educational digital content, so online education has not been adopted in government institutions. However, private schools, colleges, and universities in Kuwait responded immediately. They started preparing and delivering online courses as a potential response to the COVID-19 outbreak after getting approval from the officials from the ministry of education. Review of current issues related to the impact of the newly emerged coronavirus COVID-19 on education worldwide will help to shed light on online learning adoption as a result of schools' and universities' closure. The immediate implementation of online learning in a crisis is a chaotic problem, with diverse factors in interrelated loops. To solve the problems, the ideology of perspective in systems thinking serves as a way to simplify a problem and focus on specific granulations without excluding the bigger picture in which the problem resides. A focus on instructors' and students' perceptions of online learning acceptance and highlighting factors affecting online learning adoption is an adequate starting point to explore the problem.

## **Study Sample**

The study targets instructors and students from various educational institutions in Kuwait; private and public. Responses from the sample were collected in two-time intervals, pilot study time interval and primary study time interval. A total of 4,024 instructors and students answered all of the questions in the survey, Table 1 and Figure 2 display the demographic variables for the distribution of the study sample.

The sample results showed a broad difference in the number of responses between males and females. This difference was expected because the Kuwaiti female student population is larger than male students and instructors.

## **Data Collection Instrument**

The instrument for data collection was designed using phases 2, 3, and 4 of the framework. Phase 2 extracts primary acceptance factors from the literature, several previous studies influenced the outcome (Al-Hunaiyyan, Alhajri, & Al-Sharhan, 2018; Demuyakor, 2020; Chi, 2015; Girik Allo, 2020). In addition, contextual acceptance factors represent phase 3 (Al-Anbaa, 2020; Anbaa, 2020; Academia, 2020). The literature review section of this article emphasized four distinct dimensions that could be used to define online acceptance. These dimensions are shown in Figure 3.

Factors were divided into four dimensions: perception of online learning, online collaborative learning, instructors' and students' readiness, and barriers of online learning adoption in response to COVID-19. Table 2 shows each dimension and its link to the literature.

Table 1. Characteristics of the sample

		Frequency (n)	Percent (%)
Gender	Male	864	21.5
	Female	3,160	78.5
Category	Student	2,902	72.1
	Instructor	1,122	27.9
Institution type	Public	2,980	74.1
	Private	1,044	25.9

Figure 2. Characteristics of the sample

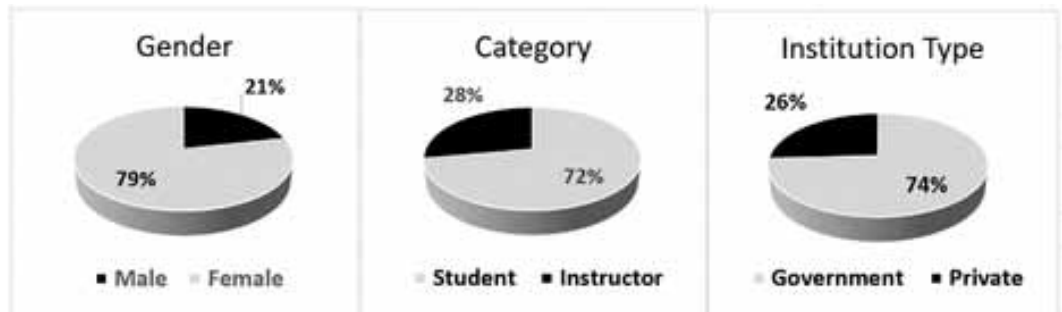
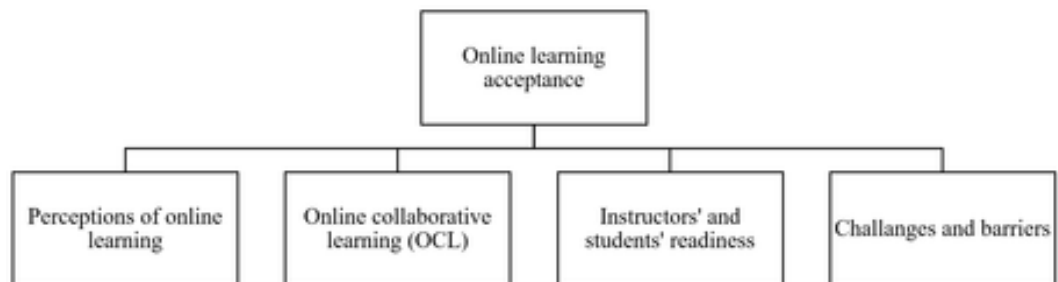


Figure 3. Dimensions of online learning acceptance



In phase four, each factor initiates one or more statements, and the final questionnaire contained 25 items, divided into two parts. Part one collected demographic data, and part two contained 22 questions answered using a three-point Likert-type scale, 1 for disagree, 2 for neutral, and 3 for agree. An online survey was randomly distributed electronically via email, social media, and e-messaging systems at two-time intervals. The pilot study was administered the first week of March 2020 to assess the questionnaire's suitability. Cronbach's Alpha score was 0.901, which indicates that the questionnaire was reliable and could be used confidently on the primary study sample. The primary study includes results from both the pilot study and the responses collected in the last week of March 2020.

**Table 2. Shaping the questionnaire (four dimensions)**

Dimension	References from the literature	References from the environment
Perceptions of Online Learning	(Bączek, et al. 2020); (Al-Hunaiyyan, et al. 2018); (Demuyakor, 2020)	(Al-Anbaa, 2020); (Anbaa, 2020) (Academia, 2020);
Online Collaborative Learning	(Shahabadia & Uplaneb, 2015); (Harasim, 2017); (Chatterjee, 2015).	(Al-Anbaa, 2020); (Academia, 2020).
Instructors’/Students’ Readiness	(Martin, et al. 2019); (Chi, 2015)	(Academia, 2020); (Anbaa, 2020).
Challenges and Barriers	(Bączek, et al. 2020); (O’Doherty, et al. 2018); (Parvin, 2016)	(Al-Anbaa, 2020); (Academia, 2020); (Anbaa, 2020).

## Data Analysis

The data obtained from the study sample were represented using frequency, percentage, mean, and standard deviation (SD) and analyzed using a t-test. A p-value of 0.05 was considered statistically significant in all cases.

## RESULTS AND DISCUSSION

This section, phase five of the framework, presents and discusses the findings of the questionnaire. It focuses on the factors that affect the acceptance of online learning in response to COVID-19. By implementing the framework, factors from both the literature and the environment have been extracted. Factors were divided into four dimensions: perception of online learning, online collaborative learning, instructors’ and students’ readiness, and barriers to online learning adoption in response to COVID-19.

### Perceptions of Online Learning in Response to COVID-19

The suspension of face-to-face learning required Kuwaiti educational authorities to consider online learning as an option, generating disputes among supporters and doubters. Table 3 shows the results obtained from the preliminary analysis of e-learning acceptance in response to COVID-19.

Table 3 shows that the mean value of each item was slightly higher than 2.0, apart from the last question, which reflects a neutral response regarding the lack of knowledge toward using e-learning with the mean value of 1.98. The mean value for item 1 was 2.10, which indicates that respondents

**Table 3. Perceptions of online learning in response to COVID-19**

No.	Questions	Disagree		Neutral		Agree		Mean	SD
		Freq.	%	Freq.	%	Freq.	%		
1	The use of e-learning is an appropriate solution to resume studying as a result of the COVID-19 crisis.	1,175	29.2	1,267	31.5	1,582	39.3	2.10	0.822
2	Adopting e-learning as a response to the COVID-19 crisis does not serve the educational process.	1,127	28.0	1,253	31.1	1,644	40.9	2.13	0.820
3	Adopting e-learning, in general, does not serve the educational process even after the end COVID-19 crisis.	1,167	29.0	1,085	27.0	1,772	44.0	2.15	0.841
4	Lack of skills in using e-learning is a reason why it is difficult to implement considering the COVID-19 crisis.	1,517	37.7	1,062	26.4	1,445	35.9	1.98	0.858



were slightly in favor of e-learning. The mean values in Table 3 indicate that instructors and students moderately agreed that e-learning is an appropriate solution during the COVID-19 crisis.

The decision to continue the rest of the academic year with online learning sparked concerns and debate between supporters and skeptics. The former minister of education in Kuwait said that online learning is better than leaving students away from their schools and colleges. He stressed that the advantages of e-learning overwhelm its disadvantages, especially in the current crisis (Anbaa, 2020). Similarly, the former higher education minister said Kuwait has all of the ingredients needed to challenge COVID-19, and it was shameful that Kuwait is unable to implement online learning (Alanbaa, 2020). Also, 111 faculty members from Kuwait University signed a statement asking for the continuation of the suspended semester using e-learning systems. They stress that maintaining continuity of learning should be the highest priority (Al-Anbaa, 2020).

On the other hand, a faculty member of the Department of Educational Technology at PAAET noted that the idea of online education as an alternative to traditional learning at present is not entirely feasible. He emphasized the importance of the proper infrastructure, instructors, student readiness, and the availability of appropriate digital education content (Academia, 2020). Similarly, the former head of the Kuwaiti Cultural Office in Washington DC, said that there are many challenges to implementing online learning. He sees a lack of instructor and student readiness, a lack of efficient e-learning systems, and a lack of control over student evaluation (Academia 2020). Likewise, the head of the Faculty Members' Association at Kuwait University said online education is not a luxury issue. He does not agree with moving learning online due to a lack of legislation and laws that govern e-learning.

Two hundred leaders of distinguished global universities from 45 countries were surveyed in 2018. The results from the 200 respondents revealed that online learning would never match traditional face-to-face teaching, and only 24% of the sample believed that e-learning would be more popular than the conventional classroom environment by 2030 (Matthews, 2018). Martin (2020) thinks that online environments offer great opportunities during crises that prevent face-to-face learning and proposes five key considerations for educators: instruction, content, motivation, relationships, and mental health. He points out that poor-quality online instruction can negatively affect the learning process (Martin, 2020).

## Online Collaborative Learning (OCL)

There is no single way to teach; however, some learning methods and strategies are more effective than others. Learning methods and strategies play essential roles and consideration should be given to teaching and learning styles when the traditional classroom is adapted to online education. Learning management systems (LMS), collaboration devices, and e-learning platforms play a vital role as they allow instructors and students to manage, plan, deliver, and track the learning process to achieve the pedagogical objectives. Table 4 contains seven items with the results of respondents' opinions on collaborative learning and teaching methods when using e-learning, with new enforcement in Kuwait to ban face-to-face learning due to the COVID-19 crisis.

The results shown for items 5 and 6 indicate that the participants were confident that e-learning allows flexibility in learning anytime, anywhere; it also encourages students to search for learning resources, as indicated by these items. The mean value of 2.35 for item 7 indicates that instructors and students perceived e-learning as suitable for theoretical courses. At the same time, item 8 reveals that participants did not seem to recognize the effectiveness of e-learning for laboratory-based classes with a mean value of 1.95. Many instructors in Kuwait believe that online learning could be useful for theoretical subjects and more difficult for scientific laboratory-based disciplines (Academia, 2020). However, researchers have developed numerous virtual laboratories and applications with smart interfaces to allow students to interact with elements and mixtures to perform experiments. Virtual exploratory learning is claimed to be hindered by technological conditions that are not easy to create and validate. However, it is documented that virtual laboratories are an excellent way for students to practice science and engineering experiments in a healthy online environment (Andriotis, 2016).

**Table 4. Online collaborative learning**

No.	Questions	Disagree		Neutral		Agree		Mean	SD
		Freq.	%	Freq.	%	Freq.	%		
5	With e-learning, the student is more flexible in learning, and learning can take place anytime, anywhere.	1,010	25.1	928	23.1	2,086	51.8	2.27	0.835
6	E-learning encourages students to search for information from various sources.	874	21.7	1,019	25.3	2,131	53.0	2.31	0.806
7	E-learning is suitable for theoretical courses.	748	18.6	1,134	28.2	2,142	53.2	2.35	0.774
8	E-learning is an acceptable alternative to traditional laboratory experiments.	1,343	33.4	1,548	38.5	1,133	28.2	1.95	0.783
9	I prefer live video chat (synchronous) with the instructor and the students.	1,233	30.6	788	19.6	2,003	49.8	2.19	0.876
10	I prefer reviewing videos of the course learning material (asynchronous) of the professor through platforms (such as YouTube) at any time.	867	21.5	873	21.7	2,284	56.8	2.35	0.812
11	I prefer online education through chatting (text or audio discussion) between the professor and students.	1,289	32.0	925	23.0	1,810	45.0	2.13	0.868

The study of Laux et al. (2012) shows that learning by making a motivational impact challenges the exploratory skills of learners. Furthermore, a recent study by Acosta et al. (2018) concluded that online learning is accepted by students in an Optometry lab-based program due to its technologically well-informed students. Although there are many opinions in Kuwait on the difficulty of using e-learning for science, engineering, and medical courses, the studies mentioned above indicated that e-learning can be used in practical and laboratory courses.

As far as synchronous and asynchronous learning is concerned, the mean value of 2.19 for item 9 on the use of real-time video conferencing (synchronous learning) was lower than asynchronous learning in item 10 with a mean value of 2.35. Items 9 and 10 indicate the participants prefer to use video anytime, anywhere, rather than having classes in real-time video. On the other hand, online chat using text or audio, as described in item 11, was preferable with a mean value 2.13. The advancement of technology has enabled developers to provide open and flexible learning tools that encourage engaged and collaborative learning (Zhang, Burgos, & Dawson, 2019). Since face-to-face learning has been prohibited during the COVID-19 pandemic, some educators favor synchronous learning where instructors and students take advantage of real-time video or audio experiences. Others prefer asynchronous learning in which instructors enrich the students with educational resources. However, online learning strategies may also not be appropriate for all students depending on their age, grade level, learning style, and disability. Online learning is not just a technological issue. Technology is a tool to deliver learning materials and allows communication and collaboration between instructors and students. Instructors should wisely select digital learning materials as choosing high-quality educational resources is essential to support teaching and learning (Ozdemir & Bonk, 2017).

### Instructors' and Students' Readiness

Before deciding to move teaching and learning online, considerations should be given to instructors' and students' readiness (CoSN, 2020). Are instructors prepared to teach, deliver, and collaborate online? Do they possess the required skills, including digitalizing and providing their content, using LMS, conducting virtual learning and video conferencing, and evaluating students online? Preparing instructors and students for online learning is a real challenge in a very tight timeframe. Table 5 contains five items showing participants' views on readiness.

Item 12 in Table 5 indicated that instructors and students felt comfortable with browsing the web and using email with a mean value of 2.4. In item 13 with a mean of 2.65 suggested that e-learning

**Table 5. Instructors' and students' readiness**

No.	Questions	Disagree		Neutral		Agree		Mean	SD
		Freq.	%	Freq.	%	Freq.	%		
12	I am good at surfing the web, and I know how to send and receive emails.	769	19.1	880	21.9	2,375	59.0	2.40	0.789
13	The use of e-learning requires the training of instructors and students to be able to use it effectively.	341	8.5	715	17.8	2,968	73.8	2.65	0.629
14	I am ready to learn the skills that help me to use e-learning.	794	19.7	754	18.7	2,476	61.5	2.42	0.799
15	My (school, college, university) provides proper training courses for using e-learning.	2,063	51.3	990	24.6	971	24.1	1.73	0.825
16	I am not encouraged to use e-learning because of my weakness in the English language.	1,056	26.2	1,035	25.7	1,933	48.0	2.22	0.834

requires training the instructors and the students to be able to use it effectively. Item 14 indicated that participants were practically ready to learn the skills needed to use e-learning with a mean value of 2.42. The analysis showed that instructors and students need to improve their knowledge and skills to be competent in the use of e-learning tools and applications. However, the lower mean value of 1.73 for item 15 indicates that institutions do not provide sufficient training. The last item showed that instructors and students moderately agreed that they are not encouraged to use e-learning because of their weakness in the English language with a mean value of 2.22. Therefore, developing Arabic language-supported interfaces and interactive Arabic learning materials would motivate those with poor English skills.

Students in Kuwait use technology frequently, so the issue of learning how to use interactive and collaborative systems to learn and to communicate is not an obstacle. However, student readiness programs and online tutorials must be provided. The work of Kayaoğlu & Dağ Akbaş (2016) aimed at evaluating the online learning readiness level of 189 medical students in Turkey. The results suggest that once the students are self-directed, motivated, and confident, they appear to be ready for online learning. Moreover, the study suggests that for the best utilization of online learning programs, students need to improve their ability to use computers, the internet, and applications. Teaching staff needs to be trained to design and deliver online courses, especially if the Kuwaiti educational institutions have no choice but to alter their instructional methods and switch to online learning and encourage students to be ready for the shift. On the other hand, many academics in Kuwait have clarified that some challenges are facing the change to online learning, including that some instructors and students may not have the ability and the previous knowledge and skills required for e-learning (Al-Anbaa, 2020). Others expressed that using online education in the current crisis is difficult because both the instructor and the student have no idea about the use of online learning (Academia, 2020).

The overall results presented in Table 5, support the conclusion that instructors and students, in this case, seem to be ready for an online learning experience. They also need to improve their knowledge and skills on how to manage software for online learning and to be prepared to move to online learning, especially with support and encouragement from their institutions.

### Challenges and Barriers Affecting the Acceptance and Adoption of E-Learning

As schools, colleges, and universities across the globe are forced to switch to online education, challenges and barriers must be considered. A lack of strategic plans, appropriate infrastructure, excellent digital learning materials, and user preparation are all challenges involved in moving from traditional learning to e-learning. The six items in Table 6 show the participants' responses to the challenges of e-learning.

**Table 6. Challenges and barriers affecting the acceptance and adoption of e-learning**

No.	Questions	Disagree		Neutral		Agree		Mean	SD
		Freq.	%	Freq.	%	Freq.	%		
17	I see that we have a suitable infrastructure (hardware-software - networks) that contributes to the success of e-learning.	1,268	31.5	1,183	29.4	1,573	39.1	2.08	0.837
18	Various digital e-learning resources are covering our curriculum.	1,446	35.9	1,465	36.4	1,113	27.7	1.92	0.793
19	One of the downsides of e-learning under the COVID-19 crisis is the lack of confidence in the test results.	1,992	49.5	1,245	30.9	787	19.6	1.70	0.775
20	Giving more scores on exercises and activities and less on exams when using e-learning helps in a better assessment of student performance.	690	17.1	952	23.7	2,382	59.2	2.42	0.766
21	There are encouragement and motivation from (my school, my college, my university) to use e-learning.	1,607	39.9	1,345	33.4	1,072	26.6	1.87	0.805
22	The conservative Kuwaiti society plays a role in not accepting e-learning.	1,369	34.0	1,295	32.2	1,360	33.8	2.00	0.824

The mean value of 2.08 for item 17 supports the argument that there is no strong indication of a sound infrastructure that can lead to Kuwait’s success in e-learning. Similarly, item 18 with a mean value of 1.92 seems to suggest that the quality of digital learning resources that can help in online teaching and learning is questionable. There is a widespread perception that online learning encourages misconduct and makes cheating easier. The respondents almost confirmed this issue as they see a downside of e-learning under the COVID-19 crisis is lack of confidence in the test results with a mean value of 1.7 displayed for item 19. Also, motivation was identified as a critical factor in achieving a successful online learning environment (Hartnett, 2016). Question 21 reflected respondents’ opinions that instructors and students do not feel confident that their institutions encourage or motivate the use of e-learning with a mean value of 1.87. Moreover, the last item indicated that participants were balanced in terms of the impact of the Kuwaiti conservative culture on accepting e-learning with a mean value of 2.00.

The overall mean values suggest that instructors and students are not very satisfied with the infrastructure, resources, preparation, and encouragement needed to make effective use of e-learning. Furthermore, participants may feel relatively unable to control online examination and evaluation, as indicated by item 19. This view is supported by Burgess & Sievertsen (2020) who note that many institutions decided to cancel or postpone examinations with much doubt for instructors, students, and parents. However, with new technology, Meilleur (2018) listed some tools and techniques that discourage cheating on online examinations including video surveillance, timed quizzes, random questions, biometrics, and other authentication tools.

## CONCLUSION AND FUTURE DIRECTION

This study was an initial attempt to explore the success and failure of abrupt shifting to online learning. Critical factors that affect its acceptance in response to banning face-to-face teaching during the COVID-19 crisis were examined. Quantitative methods in the form of a questionnaire were employed to synthesize acceptance issues of instructors/students. The statements on the questionnaire were extrapolated from a generic framework of distinct factors. These factors evolved from both the literature and the learning environment. The framework could be used by system developers/researchers to promote information system acceptance by integrating it within their planning and evaluation process, with a questionnaire generated to target specific factors sensitive to its environment.

The questionnaire provided an adequate tool to extract fast, reliable, and valid results from a large population. Evidence from Kuwait's educational environment was collected in a very early phase of the pandemic. As a result, 4,024 responses were received from instructors and students. Questionnaire results support instructors' and students' acceptance of the online transition in Kuwait, with instructors being more accepting than students. It also confirms the differences between males and females in favor of males. Surprisingly, there were no significant differences in the acceptance of online learning between public and private educational institutions. This study also identified three categories in which factors affecting the acceptance of online learning fall: personal, technological, and institutional. These findings are of value to education decision-makers and could be a focus for raising awareness among male students. The results of the questionnaire are limited by the environment in which it was administered and cannot be generalized at this stage.

However, the framework is promising for developing questionnaires with valuable feedback that could be used in promoting online awareness via marketing campaigns that target stakeholder. It was predicted that the COVID-19 crisis could alter the shape of learning by going to online education, and a global transition to online learning confirmed this prediction. As a result, resistance to online learning is expected to disappear (Lederman, 2020). This gives reason and value to the framework. The sooner the involved instructors/students increase their abilities to master the skills involved in online learning, the better the opportunities for benefiting from an interactive online learning experience. The framework could be expanded to focus on cultural and social factors that play an essential role in accepting and adopting online learning. Instructors who have been resistant to using technology in teaching will be more likely to accept these new teaching practices over time. This will depend heavily on how educational institutions encourage and aid teaching faculty in integrating online instructions successfully within their courses.

Further research will involve constructing a model that integrates the developed framework with the planning/implementation sectors of the Ministry of Education in Kuwait. The integrated model will help build a solid foundation of successful online learning implications, considering successful international practices. Guidelines could be developed from the model to support educational authorities in Kuwait in the design/implementation roadmap of full-fledged e-learning and online education systems.

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