

University Instructors' Perceptions toward Online Teaching at the Onset of the COVID-19 Outbreak in Lebanon: A Descriptive Study

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Abstract

Purpose: The study aims at understanding to what extent university instructors are ready for the sudden shift from face-to-face teaching to online teaching and how they perceive the usefulness and feasibility of this new modality of teaching.

Methodology/Approach/Design: Faculty members from the nine campuses of the largest private university in Lebanon were invited to participate in the completion of a survey, made available in English and Arabic. The survey was completed by 692 respondents. Descriptive analyses were performed by summarizing the count and percentage of responses within each category.

Results: Analyses showed that university instructors possess the infrastructure for online teaching. Moreover, they reported positive perceptions about their readiness to teach online and about the feasibility and usefulness of online teaching. However, instructors reported that online teaching was deficient in assessment, teaching large classrooms, and delivering the practical components of the courses they taught.

Practical Implications: Findings suggest that instructors require formal training on how to integrate pedagogy with technology.

Originality/Value: Since online instruction is new in Lebanon, the study findings can help universities and other educational institutions direct their efforts in their endeavor to improve their online experience.

1. Introduction

Change is necessary for the survival of institutions; however, it becomes mandatory when novel and unanticipated events emerge. Due to the unexpected Covid-19 pandemic and the subsequent need for a total global lockdown of educational institutions, online teaching was no longer a choice but a requirement for maintaining communication between faculty and students. Further, distance communication became the only means to ensure the continuity and survival of educational institutions. In the Lebanese context, universities, public and private, were swift in transitioning by adopting learning management systems and online platforms that they, in most cases, had not used before.

In higher education, online teaching is a major change from traditional face-to-face teaching. For the instructor, the change from one mode of teaching to another is not simply learning the new system, but “it is the magnitude of the approach and procedure in performing the tasks, which relates to technological self-efficacy”(Outlaw, 2016). This includes possessing the necessary technological requirements such as efficient internet connection and devices and the competence in the new role, which comes from prior experience and skills. In addition, how the instructors perceive the usefulness of online teaching is of paramount importance for the success of transitioning to online teaching(Kisanga& Ireson, 2016). This is so because perceptions predict attitudes(Liu et al., 2010; Mahmoud, El Magrabi & Mohamed, 2015),which in turn impact behaviour(Siragusa & Dixon, 2008). Outcomes are predicted by behaviour, or, stated differently, “tasks predict performance” (City et al., 2009).

Universities abruptly ceased all their face-to-face activities on their sites due to the official lockdown caused by the COVID-19 pandemic. This was the drive behind transitioning to online teaching. Although online teaching was inevitable during this period, it is expected that it will continue to expand after institutions go back to normal operation. Instructors are instrumental in its success(Bolliger & Wasilik, 2009). Therefore, assessing the factors that promote acceptance of this mode of teaching and those that predict optimal performance provides a measure of how successful online teaching will be. In this study, we provide a detailed and descriptive analysis of the instructors’ perceptions at the beginning of the lockdown. The perceptions are meant to provide a baseline assessment of instructors’ attitudes from the nine campuses of the largest private university in Lebanon. Findings from this study can be compared to findings of future studies to examine changes in perceptions towards online learning. This is important because perceptions about technology and online teaching are predictors of its success, which in turn impact students’ outcomes. For this reason, the study was conducted at the onset of the lockdown when administrations announced the shift to online teaching. Another significance of this study lies in that it investigates online learning in a context where only a few studies have been conducted in this regard (Tarhini et al., 2016). Moreover, to the best of our knowledge, no studies have been published in the Lebanese context that explore the aspects pertaining to online teaching resulting from the current COVID -19 pandemic.

2. Literature Review

One of the most influential models of technology acceptance has been the Technology Acceptance Model (TAM) and its later variants including two primary factors influencing one’s intentions to use technology: perceived ease of use and perceived usefulness (Charness & Boot, 2016). These two factors are influenced by external variables, according to the TAM model.

External Variables

Availability and Access to Technology

Technology is essential in maintaining communication between students and their instructors, and between students and the content in times when physical distancing is necessary. The basic requirement for such communication is “computer hardware availability, software used for communication, hi-speed internet facility, and multimedia applications”(Waheed& Ahmed Jam, 2010). Computers and laptops compose the basis of the infrastructure critical for online teaching and learning. When these are lacking, it is likely that faculty’s satisfaction decreases (Bolliger & Wasilik, 2009).A study reviewing 48 papers found that one of the defining factors of technology adoption is related to hardware and software availability(George, 2015).That is why it is recommended that a university should liaise with private organizations to provide affordable devices for students and instructors and establish contracts with reliable internet service providers to make available an e-learning infrastructure (Adelabu et al., 2014).

Technology Background

The instructors’ previous experience in using the computer and internet technology efficiently is a predictor of teaching effectiveness and a factor in shaping their attitudes toward using technology(Liu et al., 2010). Previous learning experiences with information technology and computer-assisted learning lead to better user experiences. Moreover, previous online experiences affect how useful and easy online learning is perceived (Liu et al., 2010; Siragusa & Dixon, 2008)and the users’ will to adopt online teaching (George, 2015; Liu et al., 2010). This is what Lee et al.’s study examining the attitudes of faculty members found: faculty became more accepting of online teaching after receiving training but even more accepting after experiencing teaching online(Lee et al., 2015). Conversely, negative attitudes are attributed to lack of attending e-learning courses or not being trained to use it according to a study conducted to identify the attitudes of students and instructors toward e-learning(Mahmoud, El Magrabi, & Mohamed, 2015). Experience can be obtained by previous online teaching (Liu et al., 2010), formal training provided by the university for faculty (Kearns, 2016), and informal learning that is acquired through practice (Kearns, 2016; Liu et al., 2010). Faculty attitudes are shaped by their competence and skills, which are directly linked to student outcomes(Frazer et al., 2017; Hartman et al., 2019). This is reflected in a scan of the current literature about learning program design and teacher capacity stating that lack of teachers’ skills and knowledge will impact how they utilize technology and thus, directly impact student learning (Bartley et al., 2018).

Organizational Support

Organizational support for faculty comes in many forms. George (2015) investigated technical support and the availability of ICT hardware and software selection for online programs, all of which are likely to impact users’ attitudes and motivation. Mthethwa-Kuneneand Maphosa (2020) mentions additional factors that should be provided by the institution to ensure utilization of technology in teaching such as training and support for course instructors, adequate technological infrastructure, and institutional internet bandwidth.

Hung(2016)refers to institutional support as “superiors’ support, colleagues’ support and positive organizational atmosphere” (p. 123). Lee et al. (2015) found in their study that more than half of the university faculty in their study reported not receiving strong support for their online teaching. This is suggested to be a major reason for the lack of interest in embracing online teaching. Frazer et al. (2017) concluded that IT support was one of the major themes yielding to an effective e-learning experience. This is what led Georgina and Hosford(2009) to recommend that colleges should release time for training staff and provide real-time IT support staff that is experienced in pedagogy and instructional design. Summarizing a body of research, Brinkley-Etzkorn (2018) states that “instructors who teach online need thorough and continued support” (p. 25).

Perceived Ease of Use

Davis (1989), in pursuit of measures for predicting and explaining the use of technology, focuses on two theoretical constructs, one being *perceived ease of use*. This is defined as “the degree to which a person believes that using a particular system would be free of effort”(Davis, 1989, p. 320). This belief equips the teachers with the confidence to use technology in their teaching, referred to as ‘self-efficacy. Lack of this confidence is “ranked as the most significant factor preventing teachers from using technology” (George, 2015, p. 49). Perceived ease of use can be affected by variables such as computer self-efficacy (Liu et al., 2010).Time and effort-saving of the technology greatly contribute to the user’s perceived ease of use. This, in turn, impacts one’s use of technology (Hsu & Chang, 2013). Many variables such as computer self-efficacy, computer anxiety and access to the internet and devices can play a major role in how easy technology use is perceived(Mthethwa-Kunene&Maphosa, 2020). When computer anxiety increases, self-efficacy decreases and so does the user’s perceived ease of use (Bousbahi & Alrazgan, 2015).

Perceived Usefulness

Davis (1989)identifies *perceived usefulness* as the second determinant of using technology since users “tend to use or not use an application to the extent they believe it will help them perform their job better” (Davis, 1989, p. 320).Repeating Davis’s words, Bousbahi and Alragan(2015) define perceived usefulness as “the degree to which a person believes that using a particular system would enhance his/her job performance” (p. 3). They concluded that factors as organizational support, perceived ease of use and prior experience to be among those leading to this perception of usefulness. In a review of 48 papers, George (2015)identified 43 factors affecting teachers’ use of computers. Of these 43 factors, perceived relevance of computer technology is the second most frequent factor. This perception encompasses the belief of how technology can improve teaching and learning. A report drawing from the literature available on distance learning reports as a key finding that perceptions and beliefs are crucial for the users’ adoption of skills for online teaching (Bartley et al., 2018).Perceived usefulness, as the case is with perceived ease of use, is impacted by computer self-efficacy, or the belief of one's capabilities in using the computer(Liu et al., 2010).

A paradigm shift is caused by mobile technology adoption in teaching. It includes changes in pedagogy; communication among students and instructors, and students among themselves; providing feedback to students; and assessment, whether formative or summative (Sharma & Kitchens, 2004).

Studies differ in their findings of how useful users perceive online learning and technology use. A study analyzing the factors affecting the use of a learning management system found that just above half of the respondents reported that the system improved students' performance and facilitated study and learning (Mthethwa-Kunene & Maphosa, 2020). Another study, also about the use of a learning management system, concluded that external factors contributed to the perceived ease of use, which in turn affected the attitude toward the use of the system for study (Hsu & Chang, 2013).

Putting it all together, the above-mentioned constructs, *external variables*, *perceived ease of use*, and *perceived usefulness* are interconnected and interrelated. According to the literature, external variables affect how users perceive usability of technology, in its different formats, for online or distance learning. This, in turn, affects attitudes toward using technology and thus, affects its adoption. Since instructors are the sole mediators between technology and the student, it becomes of paramount importance that they embrace it willingly. Otherwise, implementing online technology in teaching will prove to be a failure.

3. Methodology and Procedures

This descriptive survey research study was conducted to explore instructors' perceptions of online learning in a private university in Lebanon during the Coronavirus pandemic. The Lebanese International University (LIU) has nine campuses across Lebanon and is currently the largest private university in the country. The university is considered to have affordable tuition fees, allowing students mainly of low- and middle-income socioeconomic status to enroll.

Participants

The entire population (N = 1,539) of the university instructors was invited to participate in the study by filling an online questionnaire. The response rate was 45% where 692 instructors filled and submitted the questionnaires. Table 1 describes the characteristics of the participants. Approximately half of the participants (49.1%) were between 31-40 years old, with a greater proportion of females (55.2%) relative to males. Forty-two percent of respondents were Ph.D. holders while 52% indicated Masters as the highest degree attained. Most respondents (85%) were employed at the university on a part-time basis. The distribution of participants across faculties and campuses was remarkably similar to that of the entire instructor population (based on the university Statistical Report by Quality Assurance Institutional Effectiveness and Quality QAIEA, 2018-2019) supporting the representativeness of the study sample to the sampled population.

Instrument

An online questionnaire was designed to gather information to investigate the psychometric qualities of teacher perceptions towards online learning. The questionnaire was developed after reviewing published studies that discussed parameters and factors that influence people's attitudes and perceptions of online learning and by thorough consultation among the authors. The questionnaire included 18 biodata questions that relate to participant characteristics (demographics, language proficiency, computer skills, internet access), and 48 questions using a 5-point Likert scale that relate to participants' perceptions of online learning. The perception questions were designed to assess external variables, perceived usefulness, and perceived ease of use as discussed in the literature review.

The questionnaire was developed in English; then translated into Arabic. Both versions were piloted and checked for validity and reliability. Content validity of the questionnaire was established by subject matter experts of the study team and by a selected number of faculty members that reviewed the questions and provided their comments. Feedback was taken into consideration and proper amendments were made. Reliability was established through the split-half method on a set of responses from 18 instructors. The Spearman-Brown coefficient was calculated for each set of items to measure the same construct. Items that reduced the reliability (Spearman-Brown coefficient < 0.60) within each construct were deleted. As a result, 6 items were deleted from the questionnaire. The reliability was re-evaluated after the deletion of items, and the correlation coefficient was between 0.60 and 0.91 across all constructs.

Procedures

After securing permission to conduct the study from the University administration and after ensuring the validity and reliability of the questionnaire, two links (linking to Google Forms) to the survey's English and Arabic versions were emailed to all full-time and part-time instructors at the university. The first page of the questionnaire detailed the objectives of the study explained that participation is voluntary and that data collected would be kept confidential. The links to the questionnaires were open for respondents for 9 days after which it was closed. Neither incentives nor bonuses were offered for responding to the questionnaire. Respondents were assured that their privacy is protected through anonymity and that the results would be solely used for scientific research purposes. Questionnaire responses collected were stored in an Excel database. Duplicate forms (N=18) that were submitted by the same person were identified and removed before data analysis.

Data Analysis

Descriptive analysis was performed on all questionnaire items by summarizing the count and percentage of responses within each category. The findings were presented using tabular summaries and charts. Attitudes and perceptions were categorically summarized with each construct. All data analyses were performed using IBM SPSS Statistics, version 20.0 SPSS, version 20.0.

Table 1: Characteristics of the study participants (n=692)

Characteristic	Number	Percent
Age		
21-30	134	19.4
31-40	340	49.1
41-50	138	19.9
51-60	60	8.7
above 60	20	2.9
Sex		
Female	382	55.2
Male	310	44.8
Monthly household income		
Below 3,000,000 L. L	197	28.5
3,000,000 L.L. to 5,990,000 L.L.	254	36.7
6,000,001 L.L. to 8990000 L.L.	68	9.8
Above 9,000,000 L.L.	20	2.9
I prefer not to answer	148	21.4
Highest degree		
Bachelors	20	2.9
Professional Diploma	21	3.0
Master	360	52.0
PhD	291	42.1
Years of experience		
Less than 2 years	49	7.1
3-6 years	209	30.2
7-12 years	237	34.2
13-20 years	117	16.9
More than 20 years	80	11.6
Employment status		
Full time	106	15.3
Part time	586	84.7
Faculty*		
Arts and Science	278	40.2
Business	150	21.7
Education	151	21.8

Engineering	110	15.9
Pharmacy	25	3.6
Campus*		
Akkar	71	10.3
Bekaa	109	15.8
Beirut	313	45.2
Mount Lebanon	93	13.4
Nabatieh	90	13.0
Rayyak	69	10.0
Saida	151	21.8
Tripoli	107	15.5
Tyre	91	13.2

4. Results and Discussion

This section includes the data retrieved from the questionnaires of 692 instructors from 9 campuses, of which 300 chose to respond to the Arabic version of the questionnaire and 392 chose the English version.

External Variables

Availability of devices and Internet

The responses in the questionnaires revealed that the vast majority of instructors owned a laptop (97.5%) and had internet access through Wi-Fi connection in their homes (98.1%) and mobile data plans (88.4%). Ninety-three percent of the instructors reported having reliable home internet, which they use mostly for searching for information and online teaching, while mobile data is used mainly for social media (table 2).

Experience and skill in using technology in teaching

Only about 3% of the instructors reported not having used a computer for their preparation of lessons. A fairly large percentage (88%) use presentation programs such as Microsoft PowerPoint and ActivInspire in their teaching. The same is true for using virtual classroom programs such as Google Classroom and Microsoft Teams where 84.4% of instructors reported using them (Figure 1).

Table 2: Instructors' use of home internet and mobile data (n=692)

	Home Wi-Fi %	Mobile data %
Social media	82.8	76.0
Searching for information	92.1	67.1
Searching for teaching material	85.7	43.4
Watching movies	47.5	5.1
Finishing university work	87.6	57.9

Online teaching	88.9	42.8
No Wi-Fi at home	1.9	20.4

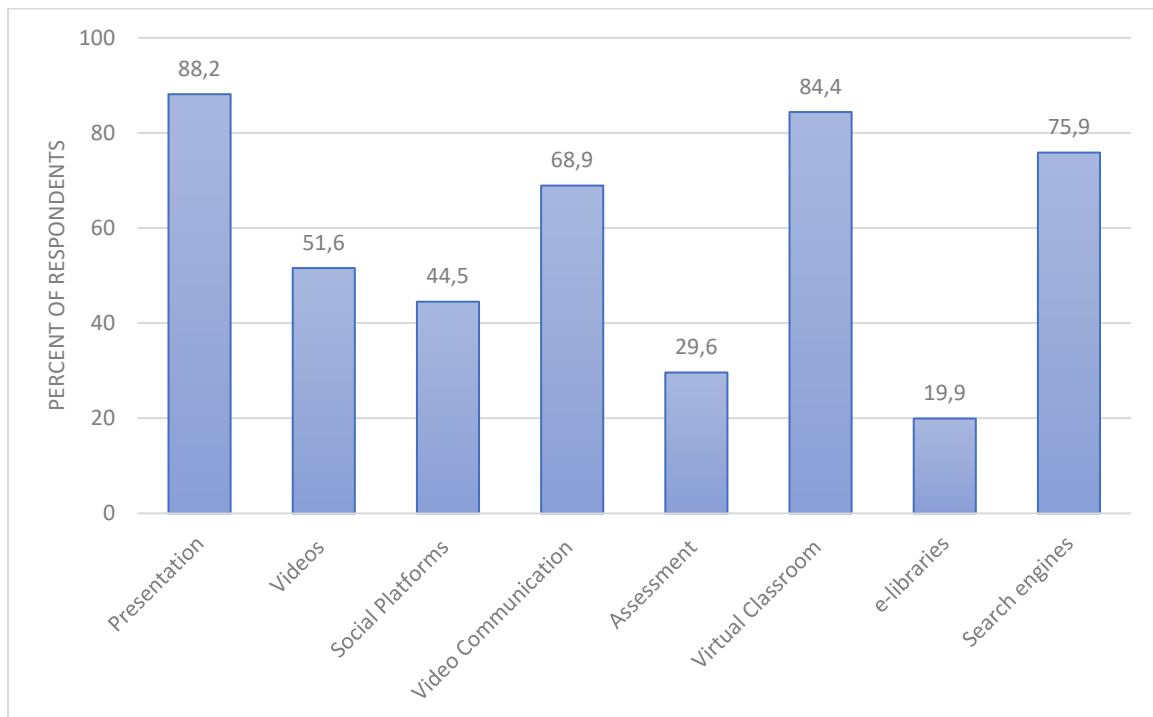


Figure 1: Applications instructors reported to use in their teaching

When it comes to using computer applications and programs in teaching, more than half of the instructors reported having above-average skills in using the applications included in the questionnaire. The highest reporting was for using Microsoft Word, Internet search and cloud storage, whereas the least was for using equipment such LCD projectors and interactive boards (Figure 2).

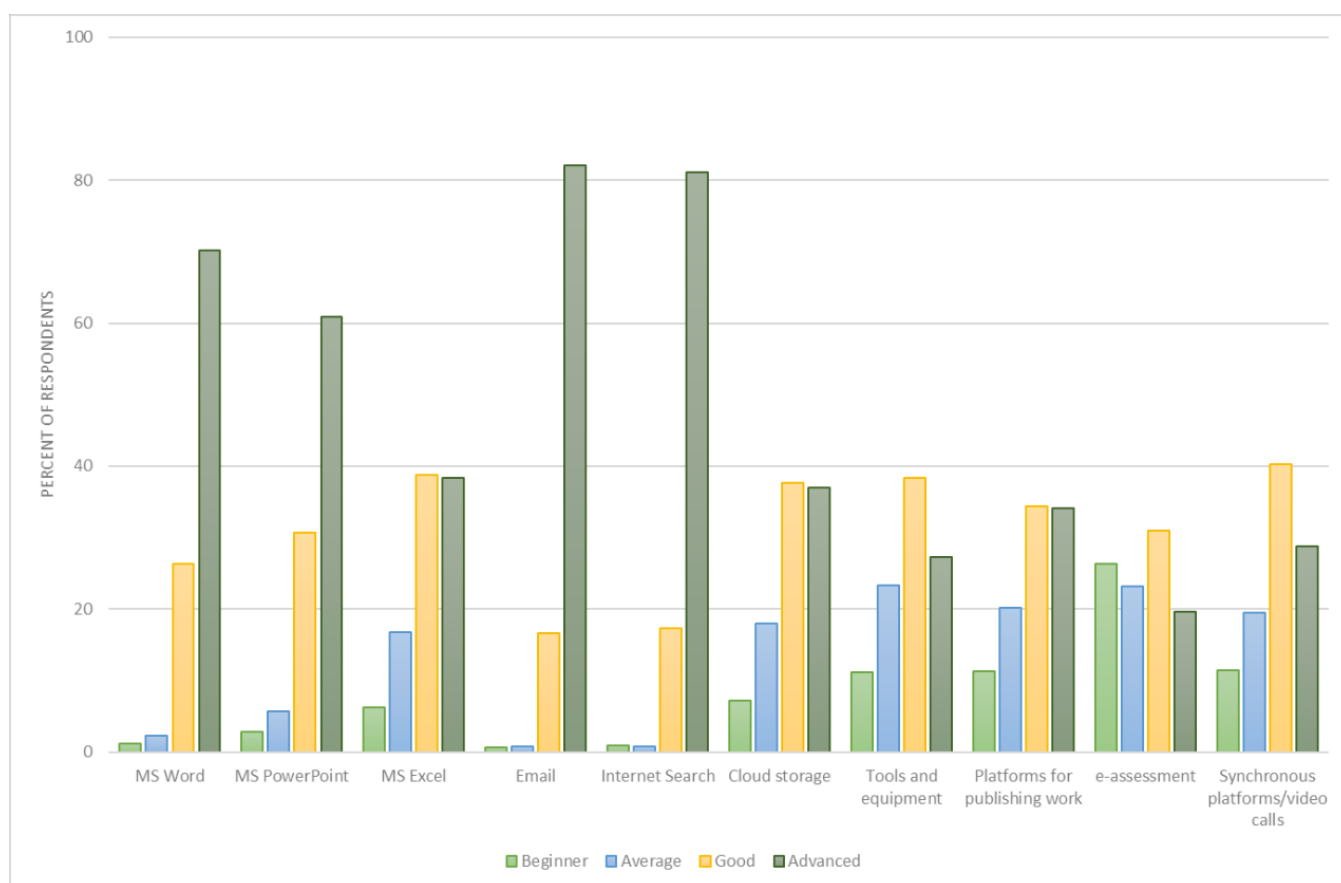


Figure 2: Instructors' evaluation of their proficiency in using different computer applications in their teaching

Perceived ease of use

Availability of devices, having internet access, and having experience and skill in using technology have an impact on how easy the instructor perceives teaching online to be. A small percentage of instructors (8.9% strongly disagree and disagree) reported that they perceived themselves as lacking the tools and skills required for online teaching (Table 3). However, more instructors reported that their students were not ready for online teaching, and the majority of them reported to be neutral about their students' readiness and skills where 40.2% and 41.4% of the instructors have neutral perceptions on either of the questionnaire items in this regard (Table 4).

Table 3: Instructors reporting on their readiness for online teaching (n=692)

	Strongly disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly agree (%)
I am ready to teach online.	1.3	4.5	16.2	39.5	38.6
I have the technological tools/equipment that will allow me to teach online.	1.2	7.7	19.8	42.3	29.0

I have the necessary skills that will allow me to teach online.	1.0	5.8	18.6	42.9	31.6
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Table 4: Instructors reporting on their students' readiness for online learning (n=692)

	Strongly disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly agree (%)
Students are ready to learn online.	10.0	30.2	42.2	15.0	2.6
My students have the technological tools/equipment they need to learn online.	9.2	32.2	41.5	14.6	2.5

Time and effort-saving are key components in making users perceive tools as easy to use. In this regard, most instructors (85.4% agree and strongly agree) perceived that online teaching required more time than regular teaching. On the other hand, less instructors perceived it as a complicated process (24.5% agree and strongly agree) (table 5).

Table 5: Time and effort required for online teaching as perceived by instructors (n=692)

	Strongly disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly agree (%)
An online session requires more preparation time than a regular classroom session does.	1.6	3.0	10.0	22.4	63.0
Online teaching is a complicated process.	15.9	28.2	31.5	17.5	6.9

Perceived usefulness

The perceived usefulness of online teaching affects how useful instructors perceive it to be. Usefulness is divided into four categories: useful for content delivery, pedagogically useful, useful for assessment of students, and useful for promoting higher-order thinking skills.

Content

More teachers had no strong opinion regarding how beneficial online teaching is for students with 41% reporting a neutral opinion, while the rest are distributed among agreeing and

disagreeing. However, more teachers disagreed that in online teaching, students can learn better than in regular classrooms (table 6).

Table 6: Instructors' perceptions of how useful online teaching is for delivery of course content (n=692)

	Strongly disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly agree (%)
Online teaching is academically beneficial for students.	8.1	20.1	40.9	24.3	6.6
Students can learn more material online than they would in a regular classroom.	25.7	28.0	24.1	14.7	7.4

Pedagogy

The percentages of instructors who reported negative perceptions when responding to questionnaire items pertaining to the usefulness of online teaching ranged from 36 to 59% (strongly disagree and disagree). The items that received such negative perceptions included if online teaching can replace regular teaching, allow for interaction, be useful for teaching the practical component of a course, and be useful for large classrooms. However, most instructors perceived online teaching as useful for teaching the theoretical component of a course and that it enhances students' autonomy (table 7).

Table 7: Instructors' perceptions of the pedagogical usefulness of online teaching (n=692)

	Strongly disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly agree (%)
Online teaching can replace regular classroom teaching.	32.1	26.7	26.0	12.0	3.2
Online teaching allows for interaction between the students and the instructor.	13.6	25.4	35.4	21.2	4.3
The theoretical component of the	2.9	10.3	26.6	40.9	19.4

courses can be taught online.

The practical component of the courses can be taught online.	18.8	29.9	28.9	18.5	3.9
Instructors can tell if students are following up with them in an online session.	10.7	22.3	30.5	27.3	9.2
Students can work in groups in an online class.	12.9	22.0	30.6	26.4	8.1
Large classrooms (more than 30 students) can be taught online.	23.0	26.0	23.4	20.1	7.5
Online learning enhances students' autonomy and independence.	4.6	11.0	29.9	38.6	15.9

Assessment

Instructors reported highest rate of negative perceptions about the questionnaire item related to online testing being as effective as in-class tests (35.8% strongly disagree and 30.6% disagree). The item that received the highest rate of agreement was that students' work can improve based on online feedback (37%), but then almost an equal number of instructors reported neutral perceptions regarding this item (36.8%)

Table 8: Instructors' perceived usefulness of online teaching when assessing students' work (n=692)

	Strongly disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly agree (%)
It is feasible to assess students' acquisition of knowledge and skills through online teaching.	15.0	27.3	34.4	19.8	3.5
Students can take a variety of exam types online.	15.0	25.1	32.7	23.0	4.2
Online tests are as effective as in-class tests.	35.8	30.6	23.6	7.4	2.6
Students can improve the quality of their work based on online instructors' feedback	3.9	15.5	36.8	37.0	6.8

Higher-order thinking skills

Instructors do not hold strong positive or negative perceptions concerning the usefulness of online teaching encouraging high-order thinking skills. While 38% (strongly disagree and disagree) of instructors believe that higher-order thinking skills can be taught online, almost an equal percentage (35.8%) are neutral in this regard. On the other hand, 35% (agree and disagree) of instructors believe that online teaching encourages critical thinking. Almost an equal percentage (37%) hold neutral perceptions in this regard (Table 9).

Table 9 : Instructors' perceived usefulness of online teaching for teaching and encouraging higher order thinking skills

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
High order thinking skills (analysis, synthesis, evaluation, creation) can be taught online.	11.7	26.4	35.8	20.4	5.6
Online teaching encourages critical thinking.	6.4	21.5	37.0	28.2	6.9

Discussion

Due to the sudden COVID-19 lockdown, educational institutions adopted online learning as the only available alternative to face-to-face learning in Lebanon and across the world. This decision was taken seriously by higher education institutions. Since the shift was abrupt and mandatory, it was worthwhile to investigate the readiness and the perceptions of the main stakeholders in the educational process, instructors, because they are instrumental in the success of this shift in teaching (Bolliger & Wasilik, 2009).

Instructors' responses to the questionnaire items regarding the availability of the technological infrastructure that would allow them to teach online indicate that they possess the necessary devices and reliable internet. Most instructors (97%) surveyed reported using their computers, with varying frequency, for lesson preparation (2.5% rarely, 7.1 sometimes, 22% often and 67.9% always), and almost all reported having either a Wi-Fi connection or mobile data. That is so even though a reliable internet connection is generally known to be highly costly in Lebanon compared to other countries. Possession of devices and having an internet connection are among the factors that George (2015) refers to as hardware-related factors that impact the instructors' use of technology in their teaching and impact their satisfaction with online teaching (Bolliger & Wasilik, 2009).

Additional factors that facilitate teaching online include having the prerequisite skills. Instructors indicated that they use internet applications and programs in their teaching. They

are mostly ready to use presentation software, video communication applications and virtual classrooms, which are basic for teaching online. This is in line with a study done on 683 UK teachers that found that teachers use computer technology mostly for lesson preparation, preparation of teaching material and presenting the information. While this is a prerequisite for more advanced pedagogical usages, in this form, they remain procedural tasks having logistical rather than intellectual benefits (Perrotta, 2013).

The findings of this study show that university instructors lack the skills required for using online assessment. This is a major drawback to effective online learning as assessment should be an integral, ongoing process to ensure that learning is taking place. Online assessment tools are numerous and allow for different types of formative and summative assessment. In addition, they are malleable in that they allow for providing manual and automatic feedback and for assessing not only the application of students' knowledge but higher-order competencies (Guerrero-Roldán & Noguera, 2018). However, this will not come to teachers without "extensive pedagogical knowledge of all existing types of e-assessment activities and their characteristics" (Guerrero-Roldán & Noguera, 2018), which we assume they do not have since most instructors (93.8%) reported that they gained their skills of using technology through personal experience.

Gaining skill through personal experience is considered informal learning acquired by day-to-day practice (Kearns, 2016). Informal learning provides practice in operating the technological tools and applications and the logistics of teaching. However, the complex process of online teaching requires formal training, sponsored and developed by the university (Kearns, 2016) that focuses on the integration of technology with pedagogy and subject matter content to be most effective (Brinkley-Etzkorn, 2018) to "design, implement and assess learning experiences to engage students and improve learning" (*ISTE Standards for Teachers*, n.d.).

Instructors reported the highest skill in using Microsoft Office applications and email, which are non-interactive applications (except for email). Both can be used for asynchronous communication and cannot be far-reaching unless used along with a platform that would allow for interactivity and remote communication. However, they reported lower skill in utilizing interactive applications that can be used synchronously (and asynchronously) for teaching such as e-assessment tools and video conferencing platforms.

Instructors reported that they were ready to teach online and that they possessed the technological tools and skills (78.1%, 71.3%, and 74.5% answered strongly agree or agree to questions about being ready, possessing tools, and possessing skills respectively). This goes in line with their actual possession of the necessary devices, skills, and knowledge. This is coupled with their confidence in their prerequisite skills and with their self-efficacy in using computers/internet and handling tools. These are factors that positively impact the instructors' readiness for online performance (Hung, 2016) and thus facilitate their success in online teaching (Adelabu et al., 2014). However, they reported that they did not perceive their students to be ready to learn online (only 17.6% answered agree or strongly agree to the question about students' readiness). Moreover, instructors believe that their students do not

possess the necessary tools for online learning as only 17.1% reported that students had the necessary tools. This is contradictory to the common belief that younger generations are more likely to adopt technology than the older generations are. An issue arises here which is whether this negative perception of students' readiness might create what is known as the Pygmalion effect, where teachers' expectation of the students determine the success of the student and quality of their performance (Rumain, 2010; Tauber, 1998). However, we need to understand that other factors play a role in student success such as student autonomy that online teaching has the potential to enhance (Matrix, 2016), delivery of material, test design (Chang, 2011), all of which are instructor-related factors; and students' self-concept and their prior achievement, which are student-related (Friedrich et al., 2015).

It is clear that instructors perceive online teaching as a demanding endeavour that requires time for preparation and that it is a complicated process (Table 6). Time and effort are dimensions of convenience and perceived ease of use (Hsu & Chang, 2013). How they are perceived can impact instructors' attitudes toward online teaching (Liu et al., 2010). Workload and time requirements associated with preparation for online lessons compared to those of traditional courses are great barriers in the adoption of online education (Bolliger & Wasilik, 2009).

Integrating technology into the content to be taught and the pedagogy can pose a challenge for instructors (Brinkley-Etzkorn, 2018). This is reflected in their responses to statements that aimed at eliciting perceptions about the usefulness of technology in pedagogy, assessment, content, and critical thinking. Instructors expressed preference for in-class teaching when the questionnaire items were comparing online practices to in-class practices. Most instructors perceive online teaching, testing, and covering content material not to be as effective as when conducted in class (66.4%, 58.8%, 53.7% answered *strongly disagree* and *disagree* respectively). This could be due to not having any prior experience with online teaching. Studies show that faculty with at least one semester of experience with online teaching yielded positive perceptions (Huang & Hsiao, 2012; Lee et al., 2015).

Table 10: Items where more instructors showed disagreement (disagree and strongly disagree) than those who were neutral or reported agreement. The three items are comparing online teaching to in-class teaching

Questionnaire Item	Percentage of instructors who disagree/strongly disagree in descending order (%)
Online tests are as effective as in-class tests	66.4
Online teaching can replace regular classroom teaching	58.8
Students can learn more material online than they would in a regular classroom	53.7

Instructors reported low confidence in how technology integrates with pedagogy, content, and assessment, and how it engages students in high-order thinking. The lack of formal training accounts for the instructors' lack of comfort with the tools required (Jordan, 2016). Such training should be conducted before using in the classrooms to avoid misusing the tools and ensuring success in implementation (Jordan, 2016).

Table 11: Items where more instructors showed disagreement than those who reported neutral or reported agreement

Questionnaire Item	Percentage of instructors who disagree/strongly disagree in descending order (%)
Large classrooms can be taught online	49
The practical component of the courses of study can be taught online	48.7
It is feasible to assess students' acquisition to knowledge and skills through online teaching	42.3
Students can take a variety of exam types online	40.1
Online teaching allows for interaction between the students and the instructor	39
High order thinking skills can be taught online	38.1

More than half of the instructors perceive online teaching to be effective for teaching the theoretical component of the course and for enhancing students' autonomy. Other educational practices where more instructors had a positive opinion than those who disagreed included the questionnaire items stated in table 11.

Table 12: Questionnaire items where more instructors perceived online teaching to be effective than those who had negative opinions

Questionnaire Item	Percentage of instructors who agree/strongly agree in descending order (%)
The theoretical component of the course of study can be taught online	60.3
Online learning enhances students' autonomy and independence	54.5
Students can improve the quality of their work based on the online feedback given by their instructors	43.8
Instructors can tell if students are following up with them in an online session	36.5

More instructors perceive online teaching not to be highly useful for the delivery of content, assessment, enhancing high-order thinking and for pedagogy (Tables 10 and 11). This is expected since although instructors have access to technology that facilitates using online tools, it remains that the instructors are not well-prepared through formal training on integrating technology with their subject matter, assessment, and pedagogy. Once skills and competence are obtained, perceptions and practices should improve (Tarhini et al., 2016), which in turn should impact learning outcomes.

5. Conclusion and Suggestion

The study aimed to explore how ready university instructors were for the sudden shift to online teaching and how they perceived it. The results show that university instructors possess the technical skills and tools that are necessary for online teaching. The majority have gained their experience of integrating technology into their teaching informally. This makes most of their use of technology for the logistics of teaching. More formal training is required on the complex pedagogy of the use of technology. This will transfer technology usage to more intellectual practices which is necessary for teaching. Regardless of the type of training they have received, instructors, although surveyed at the beginning of the transfer to online teaching, because of the COVID 19 pandemic, revealed positive perceptions about their readiness to teach online. They also revealed positive perceptions about the suitability of online teaching for the theoretical components of courses for enhancing students' autonomy. This is a good predictor of the success of online teaching. However, instructors reported that they did not perceive online teaching to be suitable for assessment and to cover the required material. In addition, instructors' responses reveal that they believe in the higher level of success of face-to-face teaching in comparison to online teaching. This is especially true for teaching large classrooms and for teaching the practical components of their courses. These negative perceptions might be mitigated after the experience with online teaching, and thus a follow-up survey will be disseminated to the participants of this study to detect any changes in their perceptions after engaging in teaching online for the length of a semester. It is also expected that formal training will help instructors experiment with online teaching tools. This should also act toward making their perceptions positive.

It remains that student factors need to be explored. These include their motivation, availability of technological resources and their study habits, which are important determinants in the success of the transition to online learning.

Conflict of Interest

The authors of the article declare no conflict of interest.

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