Factors Influencing Students' Satisfaction in Online Learning Amid the Challenging COVID 19 Pandemic: Case Study for Lebanese Educational Sector

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Abstract

Undoubtedly, the current COVID 19 pandemic had vastly impacted many aspects of life especially higher education institutions along with their students. In an attempt to cope with the new pandemic, academic institutions had to adapt their curricula and delivery mode to better cope with the new norms of online learning. The current study examines the factors influencing the Lebanese students' satisfaction in online learning amid the challenging COVID 19 pandemic in Lebanon. A structured questionnaire was distributed and collected from a total of 378 undergraduate and graduate students from different universities in Lebanon. The Student Satisfaction Survey Form (SSSF), adapted from Abou Naaj et al. (2012), was used to measure student satisfaction in online learning. The data collected was analyzed using sample T tests, factor analysis and multiple regression analysis. The results revealed that the factors namely – Course Management, Student Interaction, Instructor, Instruction, and Technology positively affect students' satisfaction. The study results are highly imperative to academics and practitioners alike to enhance the satisfaction level of students' online learning.

Keywords: Student satisfaction, COVID 19, Online Learning, Higher Education

Introduction

Higher Education has witnessed myriad changes during the past two decades including the rise of online learning. This form of learning has emerged as a viable alternative for Higher Education Institutions (HEI's) to provide, not only a flexible and interactive educational experience, but also an opportunity that would grant them a greater access to a larger body of students who have difficulties in accessing on-campus education such as during crises and pandemics (Stone, 2017). Online Learning is usually defined as an electronic learning environment where instructors meet with their students in order to deliver, share and discuss any material that was previously delivered through an offline face to face educational environment (Coman et al., 2020). Online learning, because of technological innovation,

became an important aspect in the process of teaching and learning in higher education (Saleh, 2007). Almobarazz (2008) addressed the importance of online technology considering that the technology is highly integrated with the process of learning delivery. Whilst several academic institutions have successfully switched to online settings, others have considered a less challenging option and opted for blended learning. Unfortunately, many HEI's were "unprepared for a sudden switch to online learning" especially prior and during the COVID 19 pandemic according to the recent U-Multirank report (Mitchell, 2020). This is mainly due to a set of challenges that are associated with e-learning such as the e-learning effectiveness and students' diversity and satisfaction; students engaging in online education have different backgrounds, educational skills and experiences that can affect the online course results and students' satisfaction (Kauffman, 2015). In particular, the issue of student satisfaction in online learning has attracted the attention of several researchers (Al-Rahmi et al., 2015; Abuhassna & Yahaya, 2018; Abuhassna et al., 2020). According to Basilaia and Kvavadze (2020) digitally advanced countries can have more effective online learning experiences .On the other hand, access to online learning in third world countries can be a tough task. Limited accesses to reliable, fast and affordable internet connection are among the many difficulties these countries suffer from. In Lebanon for example, due to electricity cut offs and internet connectivity problems, many teachers opted for WhatsApp groups on smartphones to interact with their students and send them the class material (Rouadi & Anouti, 2020).

Perhaps one of the most influential and turning points in the context of online learning till the present date is the current global COVID-19 pandemic. In an attempt to cope with the new pandemic, academic institutions had to reform their curricula and delivery mode to better adapt to the new norms of online learning. The COVID 19 pandemic's effect on higher education is doubled for institutions who have, limited resources, inadequate technologies and internet connection problems which largely affect their capability to effectively engage in online learning (Zhong, 2020). According to the same author, additional problems with online learning encompass the lack of proper interaction between instructors and students as questions and concerns regarding any online course are usually discussed by e-mail which requires a waiting and a response time. Needless to say, socialization emerges as a notable challenge as academic institutions are often considered the main center for social interaction and group activities (McCarthy, 2020).

Recent research has shed light on the challenges and opportunities that are associated with online learning during the pandemic and studied their impact on students in particular (Adedoyin, & Soykan, 2020; Dhawan, 2020; Mailizar et al., 2020; Leo et al., 2021). Similarly, various studies investigated Online Learning in Lebanon (Mouchantaf, 2020; El Abiad, 2021). Nevertheless, research tackling the student satisfaction towards online learning during the pandemic is still scarce. This study explores the factors influencing the Lebanese students' satisfaction in online learning and its challenges during COVID 19 pandemic in Lebanon; and try to present some solutions for those challenges that Lebanon faced. The results can be utilized in the future in case universities decided to use hybrid learning.

Literature Review

Unquestionably, online education has become a necessity in the academic world as more higher education institutions (HEI's) are switching to online classes especially during the COVID19 pandemic. The sudden spread of the COVID 19 virus forced academic institutions to shift from on-campus classes to online education. Unfortunately, during this critical transition, many HEI's showed lack of readiness at both the psychological as well as the resources levels (Abduhalim et al., 2020; Bao, 2020; Henriksen et al., 2020; Hodges et al., 2020; Zhu et al., 2020). Consequently, studying the effects of online learning on the quality of education and student satisfaction has become more imperative to HEI's. Research on student performance and satisfaction in online learning has had contrasting results. For instance, Bernard

et al. (2014) implied that students' performance is better in online education compared to the traditional classroom setting, and this can be reflected through the growing level of student's satisfaction; rate of course completion, and students' level of motivation to acquire more knowledge from online education. Similar results supporting this notion were implied by other researchers including Ryan et al. (2016) and Lockman and Schirmer (2020). In contrast, some researchers found that online education has its own limitations, and thus prioritized the traditional face to face learning. According to Adams et al. (2015), compared with the traditional classroom settings, students studying online were less successful. Powers et al. (2016) found that hybrid students scored lower in exam grades when compared to traditional learners. Other factors affecting student satisfaction in online learning include student interaction, instructors, course management and structure, technology and instruction methods.

One of the main challenges in an online education is the interaction between instructors and their students on one hand, and the interaction between students and their colleagues on the other hand. Online sessions lack physical interaction, nonverbal cues and the absence of body language and thus hinder in-class interaction (Shearer, 2010) and thus the socialization is not present. Most importantly, the interaction factor is a major catalyst of student satisfaction (Ku et al., 2013; Moore, 2014; Sebastianelli et al., 2015; Alqurashi, 2019; Baber, 2020).

Past studies by Finaly-Neumann (1994) and Williams and Ceci (1997) highlighted the pivotal role that instructors can play in the overall satisfaction of the student experience in learning. An instructor performance usually refers to the instructor's response time and availability (DeBourgh, 1999). In fact, instructors often act as motivators for their students through continuous feedback and thus directly affecting their satisfaction (Finaly-Neumann, 1994; Smith & Dillon, 1999; Hara & Kling, 2003). The instructor in a face-to face learning style considered teacher's role a major because it depends on his/her live presence inside classroom. While the teacher shall be considered as a facilitator or a moderator who will be helping in managing class activity, and this where online learning can help by giving the student a wide space to self-direct their learning and not simply rely on the teacher. The instructor's role becomes even more significant in an online environment setting as he /she are supposed to direct and encourage their students to use critical thinking techniques while studying virtually or online (Huynh, 2005). It is worth to note that having reliable technological equipment is essential for the success of any instructor in an online setting (Michael et al., 2016). Another challenge is the student's absence from classes for a valid or invalid reasons and this will affect their performance and knowledge, however, within an online course, absence is less critical as information is continually available. It would be difficult to miss any single conversation that could have happened during an online class. Therefore, student has considered online learning more flexible. Lastly, Eom and Ashill (2016) found out that the instructors' experience and knowledge can have a significant influence on students' satisfaction.

A course structure is better defined as the design, development, planning and organization of a course (Aduojo, 2018; Julia, et al., 2019; Garrison et al., 2000) and is a main contributor to students' satisfaction and academic achievements (Lee, 2014). These findings are consistent with those of Gray and DiLoreto (2016) and Baber (2020).

Students' performance in online education can have a direct impact on students' satisfaction and is positively influenced by grade achievements (GPA) and program completion rates. According to Bower and Kamata (2000), students' expected grades have a positive impact on students' satisfaction. This satisfaction will lead to faster learners, less course dropouts and students will be willing to engage in online learning courses and recommend such courses to their peers.

Ferguson and DeFelice (2010) conducted a study to measure student satisfaction among students taking an online course on both shortened and full-length format. Ferguson and DeFelice recommended using a different approach when designing an intensive, or a full-term online course.

Moreover, Keller (2010) considered motivational design to be an important factor for promoting the learning experience

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In online education, technology is an important factor as it enriches the content of the delivered courses and positively contributes to the students' learning experience (Smart & Cappel, 2006). According to Belanger and Jordan (2000), a reliable technology can have a great influence on students' satisfaction. In reverse, students will experience high levels of frustrations without proper technical support (Chong, 1998; Hara & Kling, 2003). Karatas and Simsek (2009) attempted to measure the level of satisfaction of students at different types of education: the on-campus, hybrid, and online. Karatas and Simsek's (2009) findings were opposite to expectations; the results were highest at the on-campus course offering than at an online or hybrid. As found in the study, students who registered a low desire to get engaged in an online course referred this desire to their preference to communicate with classmates and instructors. However, recommendations of the study were not discouraged by the results. They found out that such findings will improve the future of online courses. The self-assessment showed that the success of online learning is connected to student satisfaction or student demand.

Finally, Past studies by Finaly-Neumann (1994) and Williams and Ceci (1997) highlighted the pivotal role that instructors can play in the overall satisfaction of the student experience in learning. An instructor performance usually refers to the instructor's response time and availability (DeBourgh, 1999). In fact, instructors often act as motivators for their students through continuous feedback and thus directly affecting their satisfaction (Finaly-Neumann, 1994; Smith & Dillon, 1999; Hara & Kling, 2003). The instructor's role becomes even more significant in an online environment setting as he/she are supposed to direct and encourage their students to use critical thinking techniques while studying virtually or online (Huynh, 2005). It is worth to note that having reliable technological equipment is essential for the good performance of any instructor in an online setting (Michael et al., 2016). Finally, Eom and Ashill (2016) found out that the instructors' experience and knowledge can have a significant impact on students' satisfaction.

Based on the above literature findings, the following hypotheses have been formulated.

H1: There is a positive relationship between interaction in online courses and students' satisfaction.
H2: There is a positive relationship between technology tools used in online classes and students' satisfaction.
H3: There is a positive relationship between instructor's performance used in online classes and students' satisfaction.
H4: There is a positive relationship between course structure in online courses and students' satisfaction.
H5: There is a positive relationship between instruction in online courses and students' satisfaction.

Methods

In order to investigate the factors affecting students' satisfaction with online education during the COVID 19 pandemic, a deductive methodological approach was pursued. The relationships between the study variables namely the factors affecting student satisfaction in online learning during

COVID 19 are determined through a correlational research design. The hypotheses of the study are then tested through a quantitative research method. In this regard, a semi structured questionnaire was distributed on a group of undergraduate and graduate and students from different private universities in Lebanon. The questionnaire was electronically distributed on a random sample of students in four private universities in Lebanon. The universities are the Notre Dame University (NDU), the Lebanese International University (LIU), the American University for Science and Technology (AUST) and the Modern University of Business and Science (MUBS) between the period of January and February 2021.

Student participation was voluntary. In total, 378 responses were received. The sample consisted of 41 % male participants and 59% female participants. The Student Satisfaction Survey Form (SSSF), adapted from Abou Naaj et al. (2012), was used to measure the Lebanese students' satisfaction in online learning (appendix A). The first section of the survey consisted of questions targeting demographic information such as gender, age, and educational level. The second part consisted of the 35-items of the (SSSF) instrument using a 5- point Likert scale, ranging from '1-strongly disagree' to '5-strongly agree' for positive items and from '1-strongly agree' to '5-strongly disagree' for negative items. These items measure the following variables: instructor, technology, class structure, interaction, and instruction. The five variables were measured using a Likert Scale from 1 to 5, 1 being strongly disagree and 5 being strongly agree. The scale was tested for reliability and validity and the internal consistency of the questionnaire items was measured using the Cronbach alpha coefficient. The Means and standard deviation of each factor and their sub-items were then calculated using descriptive statistics. Hypotheses were tested by T tests, factor analysis and a regression model. The overall alpha reliability coefficient for the satisfaction tool was 0.89 indicating high internal consistency of the items used. Additionally, the reliability analysis showed that the item level reliability ranged from "acceptable" for course management (0.66), interaction (0.71) to "good" level of reliability for instructor (0.75) and technology (0.76) and to "high" level of reliability for instruction (0.85).

Findings

As seen in table 1, the lowest mean item in the interaction factor is "Having students from the opposite gender on the other side of the online learning classroom listening to what I say might restrict my participation" with a score of 2.67 (SD=1.25) whilst the highest mean item is "I am satisfied with my participation in the class" with a mean of 3.79 (SD=0.97). In the instruction factor, the lowest mean item was "If I had known this was going to be an online learning class, I would not have taken it" with a mean of 2.57 (SD=1.25) and the highest mean item was "The use of online learning technology in this course encourages me to learn independently" with a mean of 3.96 (SD=0.90). In the instructor factor, the lowest mean item was "I am dissatisfied with the accessibility and availability of the instructor" with a mean of 2058 (SD=1.20) and highest mean item was "The instructor makes me feel that I am a true member of the class" with a mean of 4.06 (SD=0.94). In the course management factor, the lowest mean item was "I attend videoconferencing classes the same way I attend face-to-face classes" with a mean of 3.68 (SD=1.25) and the highest mean item was "The lecturer/supervisor always takes attendance" with a mean of 4.12 (SD=0.94). In the technology factor, the lowest mean item was "The instructor's voice is audible" with a mean of 2.73 (SD=1.19) and highest mean item was "Course content shown or displayed on the smart board is clear" with a mean of 4.06 (SD=0.87).

Table 1 *Descriptive Statistics of the proposed variables*

Proposed Variable	Mean	S.D.
Interaction		
A online learning session keeps me always alert and focused.	3.36	1.07
Interaction is adequately maintained with the lecturer when he/she is on the other side of the online learning classroom.	3.61	0.87
Having students from the opposite gender on the other side of the online learning classroom listening to what I say might restrict my participation.	2.67	1.25
A online learning course makes it more important for students to visit the lecturer during office-hours.	3.60	0.95
I cannot interrupt the lecturer to ask a question when he/she is on the other side of the online learning classroom.	2.88	1.15
I am satisfied with the quality of interaction between all involved parties.	3.70	0.96
I am dissatisfied with the process of collaboration activities during the course.	2.79	1.11
I am satisfied with the way I interact with other students.	3.78	0.91
I am satisfied with my participation in the class.	3.79	0.97
Instruction		
The use of online learning technology in this course encourages me to learn independently.	3.96	0.90
My understanding is improved compared to similar courses I studied before.	3.53	0.99
My performance in exams is improved compared to similar courses I studied before.	3.59	1.00
I am satisfied with the level of effort this course required.	3.88	0.89
I am dissatisfied with my performance in this course.	2.61	1.14
I believe I will be satisfied with my final grade in the course.	3.90	0.84
I am satisfied with how I am able to apply what I have learned in this course.	3.91	0.93
If I had known this was going to be a online learning class, I would not have taken it.	2.57	1.25
I am willing to take another course using the online learning delivery mode	3.68	1.12
I am satisfied enough with this course to recommend it to others.	3.92	0.95
Compared to face-to-face course settings, I am less satisfied with this learning experience.	3.27	1.20
I enjoy working on assignments by myself.	3.85	0.92
Instructor		
The instructor makes me feel that I am a true member of the class.	4.06	0.94
I am dissatisfied with the accessibility and availability of the instructor.	2.58	1.20
The instructor uses online learning technology appropriately.	4.14	0.82
Class assignments were clearly communicated to me.	4.02	0.82
Feedback on evaluation of tests and other assignments was given in a timely manner.	3.90	0.85
Course Structure		
Discipline is highly observed when the lecturer is on the other side of the online learning classroom.	3.84	0.89

The lecturer/supervisor always takes attendance.	4.12	0.94
I attend videoconferencing classes the same way I attend face-to-face classes.	3.68	1.25
Technology		
The instructor's voice is audible.	2.73	1.19
Course content shown or displayed on the smart board is clear.	4.06	0.87
The microphone is in good working condition.	4.02	0.92
The video image is clear and comprehensive when the lecturer is on the other side of the online learning classroom.	3.89	0.98
Technical problems are not frequent and they do not adversely affect my understanding of the course.	3.19	1.21
The technology used for online teaching is reliable.	3.65	1.08

One sample T-test

One sample t-test was conducted using the overall satisfaction mean with online learning approach against the 50% score which is considered to be 2.5 as an acceptable mean for student satisfaction (Giannousi et al., 2009). In the sample of the 378 students, the satisfaction mean was 3.62 (SD=0.54) which is higher than 2.5 (t=40.32, df=377, P-value<0.001). The 95% confidence interval in this analysis was [3.56- 3.67].

Factor Analysis

A Factor Analysis was used as an analysis method to measure the correlation between the observed variables (instruction, instructor, course structure, interaction and technology) and the latent variable (student satisfaction). The factor analysis using the observed variables revealed two factors of which the eigenvalues were considered to be good enough to generate factor loadings (figure 1). Factor one revealed an eigenvalue of 3.185 and factor 2 revealed an eigenvalue of 0.150. Below is the scree plot of the factor analysis. Since there was a high numerical difference between the two factors, the study focused only on the main principle component which was factor 1 with an eigenvalue of 3.185. Table 2 represents the factor loadings of each of the variables towards the latent variable "Student Satisfaction".
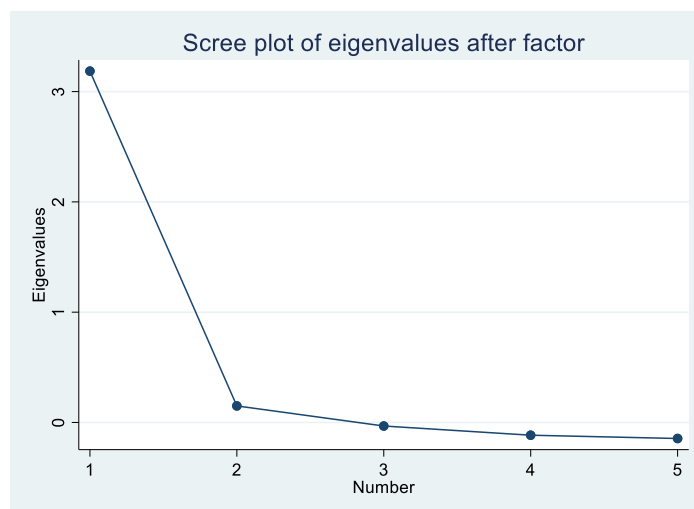

Figure 1 *Scree plot of eigenvalues post factor analysis*

The factor loadings (table 2) showed that all of the five variables; interaction, instruction, instructor, course management and technology have a very good level of loadings and therefore, predict student satisfaction. In specific, the "Instruction" variable showed the highest level of factor loading (0.8645), followed by the "Instructor" variable with a factor loading of 0.8331. The "Course Structure"

scored a factor loading of 0.7739 whereas the "Technology" factor showed a factor loading of 0.7585. Finally, the "Interaction" variable had a factor loading of 0.7552. Since of all these measured variables possessed a factor loading higher than 0.70, then we can assume that factor 1 can be the "Satisfaction" of students towards online learning.

Table 2 *Factor loadings of the observed variables*

Variable	Factor 1: Factor Loadings
Interaction	0.7552
Instruction	0.8645
Instructor	0.8331
Course Management	0.7739
Technology	0.7585

Regression

In the attempt to define the strength of association and the relationships between the dependent variable and independent variables, a regression analysis was used. In this study, the independent variables are interaction, course structure, instructor, technology and instruction while the dependent variable is student satisfaction. As seen in table 3, the results revealed a P-value less than 0.001; indicating a highly significant relationship between the independent and dependent variables.

Table 3 *Regression*

Variables	Standardized Coefficient	t-value	P-value
Constant	-8.27	-2.3	0.022*
Interaction	0.257	1.9	<0.001*
Instruction	0.342	2.0	<0.001*
Instructor	0.142	9.9	<0.001*
Course Structure	0.085	9.0	<0.001*
Technology	0.171	1.7	<0.001*

Discussion

The findings of this study indicate that the study variables namely the instructor, interaction, instruction, course structure and technology are significant predictors of student satisfaction towards e-learning during the COVID 19 crisis in Lebanon. These results are consistent with previous studies on the same topic (Madjar et al., 2013; Alrahmi et al., 2015; Barkand, 2017; Abuhassna & Yahaya, 2018; Abuhassna et al., 2020).

The study findings asserted once again, that the interaction between instructors and students and between students and their peers, is not only fundamental for the development and efficacy of online learning experience during crises, but also a major motivator and catalyst of student satisfaction. This result comes in line with the findings of Moore (2014); Sebastianelli et al. (2015) and Alqurashi (2019) who highlighted the role of offline and online interaction in addition to aspects including body language, facial expressions and the lack of emotions in online classes. In parallel, the instructor's interaction, knowledge and facilitating ability remains indispensable for an online learning experience's success. Unfortunately, the pandemic has vastly affected the aforementioned instructors' roles in terms of the instructor's new responsibilities of facilitating knowledge in a virtual environment and the need for technical expertise to deal with the technological necessities of online learning platforms. Add to that the psychological stress that instructors suffer from in times of Lebanese deteriorating environmental conditions including the devaluation of the Lira, price inflations, electricity cut offs and an unstable political situation. In this regard, further research is required to explore the efficacy of online learning in

Lebanon post COVID 19 pandemic and during the biggest economic recession in the history of the country.

The findings as well, presented empirical evidence that the course design in both online and offline education plays an indispensable role in influencing students' satisfaction and in their ability to achieve good results. Universities who provide flexible and well-designed course structures are capable of meeting academic standards in terms of learning outcomes and students' needs and satisfaction. These results were also affirmed in the works of Lee (2014), Gray and DiLoreto (2016) and (Martin et al. (2018).

In an era of online education where students are digital natives, Technology can be both an ally and enemy. Research has shown that lower students' satisfaction is usually caused by students' technological frustrations especially in the absence of technical support (Chong, 1998; Hara & Kling, 2003). Once again, the results of this study agree with previous literature on the importance of technology in student satisfaction in online education.

Conclusion and Recommendations

The study was conducted during hard economic, political and health conditions in the country of Lebanon which presented several limitations including a relatively small sample size and time constraints. Therefore, future research can explore further the psychological stress that students and instructors are suffering from and its effect on the satisfaction and online learning effectiveness. Additionally, various factors have to be taken into consideration including the devaluation of the lira, inflation, collapse of the banking sector and the unstable political situation in a country whose gold mines and diamond wells is education.

In Lebanon, the online learning experience presented for students was characterized both novelty and a challenge amid the current pandemic. In this study, five different variables have shown to be determinants of student satisfaction towards online learning. These include the student interaction, instructor, instruction, course structure and technology. These factors are essential to make student satisfaction higher in online education and might be guidelines for future online courses presented in hybrid teaching or in times of need for online teaching. Nevertheless Further research remains indispensable to shed light on the post-pandemic student satisfaction in Lebanon.

The theoretical as well as empirical findings of the present study contributed to the existing literature on student satisfaction toward online learning during the COVID 19 outbreak in Lebanon. Despite the unfortunate situation during which this study was conducted, the study has presented promising insights on the variables affecting the Lebanese students' satisfaction, a topic that is surprisingly under researched in Lebanon. This study is considered a roadmap to Lebanese universities who are seeking ways of improving their online delivery modes during and post the pandemic.

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