

Facilitators And Constraints Faced By Freshmen University Students In Online Classes During COVID-19 Pandemic

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Abstract

This study explored the facilitators and constraints faced by freshmen university students who had not been exposed to face-to-face instruction due to Covid-19 pandemic. These students were taught using only online classes through Microsoft Teams Platform. A random sample of 2118 freshmen students were selected to participate in the study. A theory-based survey was developed by the researchers to collect data from the sample of the study. The results showed that freshmen students perceived online interaction and technical support as facilitators. Moreover, freshmen students perceived internet speed and connectivity as the major constraint during online. Furthermore, male students from social science colleges perceived higher technical support from the university than did female students. The study provided a number of theoretical and practical recommendations for the field of study.

Keywords: facilitators, constraints, freshmen students, online classes, COVID-19 Pandemic.

Introduction

As of March 2020, Covid-19 has been classified as an international pandemic by the World Health Organization (WHO, 2020). Since the beginning of 2020, many countries around the world have experienced a global epidemic that has transformed face-to-face education into online instruction. The outbreak of the virus has forced educational institutions around the globe to abandon face-to-face education in favor of online learning (Garad, Al-Ansi & Qamari, 2021). Also, colleges and universities around the globe have used various technological applications to move from the traditional classroom to online interactive platforms (Mansur, Jumadi, Mastur, Utama & Prastitasari, 2021).

Universities in Jordan responded to this transformation by launching policies to support the continuity of students' learning, by providing effective online learning tools. Viner (2020) emphasized that effective tools are needed to ensure that online classroom instruction can deliver quality education, in a manner similar to face-to-face instruction. Educational institutions have tended to use various technological programs such as Zoom and Microsoft Teams among other platforms, to ensure the continuity of online education during the pandemic, and to provide high-quality education (Megan, 2021).

Online learning environments differ in their design and implementation according to the target audiences, learning objectives, accessibility, and content type (Moore et al., 2011). Online learning also focusses primary on

online interaction, which requires the availability and accessibility of internet technologies (Alshwiah, 2021). As a teaching system, online learning offers learners the opportunity to participate in lessons and perform activities from remote locations with the help of internet technology. It was found that online learning opportunities had a positive impact on beliefs about learning and teaching. An online learning environment can be teacher-supervised, or self-directed depending on the method of delivering knowledge (Moore et al., 2011).

As a result of the Corona pandemic, platforms that support online classes have gained great importance. These days, the importance of online education platform systems, which include application systems such as learning management and live lessons, have increasing importance. One of the most common of these platforms that allows creating a virtual team online is the Microsoft Teams platform, which provides the opportunity for the teacher to carry out lessons and collaborate without having to go to the classroom. It has also various features such as face-to-face meeting with students, file sharing, group interaction, assignment uploading, and easy video and photo viewing (Ruenz, 2021).

A large number of universities using virtual classroom software have preferred Microsoft Teams; because of its various advantages, and it has fewer weaknesses compared to other virtual classroom programs (Çankaya & Durak, 2020). Microsoft Teams is a platform for group interaction in online courses. It mainly focuses on conferencing groups such as team chats, private messages, and calls. Microsoft Teams is easy to use in online education, more secure, and includes powerful new tools for online learning (Wolverton, 2020).

Technological development has provided various options for online learning environments (Amirault, 2015). However, the shift from the traditional learning environment (face-to-face) towards online learning environment have created challenges for the teacher as well as the learner. For example, both need to possess technological skills, computers or smart phones, in addition to a strong internet network. Moreover, they need technical support from a specialized and trained team for this purpose (Chakraborty & Nafukho, 2014). Furthermore, online interaction and

participation in virtual learning differ from that in traditional (face-to-face) learning environments, which affects learning outcomes (Harris & Nikitenko, 2014). The low interaction between instructors and students and the lack of feedback and immediate response are among the main challenges in online classroom learning environments (Littlefield, 2018). This requires the use of new teaching methods, the possession of technological skills, and the use of effective technological tools in this type of education that differ from what is followed in traditional classrooms (Boling et al., 2012).

Statement of the Problem

The corona virus pandemic has reinforced the importance of online learning environments. In more specific terms, freshmen university students under this study have not attended any traditional instruction due to Covid-19 pandemic. This study seeks to identify the facilitators and obstacles that may face those students while attending online classes utilizing the Microsoft Teams platform. Based on that, the following research questions were formulated:

1. What are the perceptions of freshmen university students regarding the facilitations (online interaction and technical support) and constraints faced by freshmen university students who had not been exposed to face-to-face instruction due to Covid-19 pandemic?
2. Are there any significant statistical differences in students' perceptions based on gender and college?

Methodology

The present study utilized a descriptive research design. Data were collected during the second semester of the academic year 2020-2021, more than one year after the enrollments of freshmen students in online classes offered by one public university located in the middle part of Jordan. The researchers chose a random sample from university freshmen representing various university faculties. Based on data gained from the registrar office, the total number of freshmen students in the university is about 7000. A random sample of (2118) freshmen students was selected. The study

sample consisted of (889, 42%) males and (1229, 58%) females. On the other hand, the number of students from science faculties was (1675), representing 79.1% of the sample, while those from social science faculties was (443) representing 20.9% of the sample. The questionnaire was sent to participants electronically via Google link.

Instrumentation

A survey tool was developed by the researchers after reviewing the literature related to online learning, best practices in education, and university education (Wolverton, 2020; Lowenthal et al., 2009). The demographic section of the questionnaire included a description of the sample regarding gender and faculty. The questionnaire consisted of 20 items representing three factors, which were measured using a five-point likert scale as follow: 1 “bad”, 2 “low”, 3 “medium”, 4 “good”, 5 “high”. The questionnaire was sent to a team of three judges (faculty members) who have experience in the fields of online learning and survey design to determine the content validity of the survey (e.g., the clarity and suitability of the questions, time needed to complete the questionnaire). The initial questionnaire was tested for its reliability by applying it to an exploratory group consisting of 30 university students from outside the final study sample. The changes indicated by the content judges and the exploratory group were incorporated into the survey. Accordingly, the final questionnaire consisted of 15 items distributed on three factors.

The final questionnaire was named “Facilitators and Constraints by Microsoft Teams Scale” (FCMTS). The factors of (FCMTS) with its questions were as follows: internet interaction (five questions) “In the past year, how did you rate your interaction with your colleagues, faculty members, assignments, class meetings and discussions and recorded lectures); technical support (two questions) “The university provided training for optimum use of Microsoft Teams platform, information of technical support staff was available to solve technical problems); Restrictions (five questions) “financial matters (money to buy a laptop/desktop/smart phone), access to internet and its convenience, lesson

time schedule, internet speed and efficiency, type of internet subscription (smart phone, fiber, ADSL).

The 15 questions were subjected to exploratory factor analyses with Oblique rotation to determine its construct validity (Hair, Anderson, Tatham, & Black, 1998). Three factors emerged explaining (56.03%) of the total variance. The first factor was “interaction” represented by five questions, which explained (40.45%) of the variance, the second factor was “constraints” which explained (11.62%) of the variance, and the third factor was “technical support” which explained (3.95%) of the variance. Estimates of reliability using Cronbach's alpha were acceptable for all subscales which ranged from .72 to .87.

Results

Results Related to the first research question

Means and standard deviations were calculated to determine the perceptions freshmen students in one public university located in the middle part of Jordan about the facilitators they encountered during online classes using the Microsoft Teams platform. The main facilitators were “online interaction” and “technical support”. Values above 3.5 were considered high, while values below 2.5 were considered low (Bai, Eyob, Ola, & Reese, 2021). Table (1) shows that the perceptions of freshmen university students with “online interaction” were moderate. To clarify more, results showed that freshmen students had high levels of learning experiences related to interaction with faculty members, class meetings and discussions. However, their perceptions about their experience related to interaction with colleagues, interaction with assignments, and interaction with recorded lectures were moderate.

The results in table (1) also showed that technical support “the university provided training for optimal use of Microsoft Teams, and the information provided by technical support staff to solve technical problems provided to freshmen students during online instruction was moderate.

Table 1: Means and standard deviations students' responses about the facilitations they were provided while learning in online classes during the Corona pandemic

SUB-SCALE OFFACILITATORS	ME AN	SD	LEVEL
SUB-SCALE OF ONLINE INTERACTION			
INTERACTION WITH COLLEAGUES	3.17	1.18	MEDIU M
INTERACTION WITH FACULTY MEMBERS	3.62	1.13	HIGH
INTERACTION WITH ASSIGNMENTS	3.20	1.15	MEDIU M
INTERACTION WITH CLASS MEETINGS AND DISCUSSION	3.85	1.25	HIGH
INTERACTION WITH RECORDED LECTURES	3.31	1.24	MEDIU M
TOTAL INTERACTION	3.43	0.92	MEDIU M
SUB-SCALE OF SUPPORT			
THE UNIVERSITY PROVIDED TRAINING FOR OPTIMAL USE OF THE MICROSOFT TEAMS PLATFORM	2.78	1.27	MEDIU M
TECHNICAL SUPPORT STAFF PROVIDED THE HELP TO SOLVE TECHNICAL PROBLEMS	3.17	1.19	MEDIU M
TOTAL TECHNICAL SUPPORT	2.98	1.09	MEDIU M

Second: Restrictions during online classes

To determine the perception of fresh men students with regards to the constraints they faced while learning via online classes during the Corona pandemic, means and standard deviations were calculated. According to table (2), generally speaking, fresh men university students' perceptions of "restrictions" they faced during their online classes are generally

moderate, but with some variation in their perceptions. In detail, freshmen students' perceptions were greater concerning "internet speed and efficiency", with a mean score of (3.27), followed by "access to the network and its suitability" with a mean score of (3.26), then comes "financial matters" with a mean score of (3.19). Their perceptions were lower in relation to "time schedule of lessons", and "the type of internet subscription" with mean values of (2.68) and (2.98), respectively.

Table 2: Means and standard deviations of freshmen students' responses to the constraints they faced while learning via online classes during the Corona pandemic

SUB-SCALE OFCONSTRAINTS	MEAN	SD	LEVEL
FINANCIAL ISSUES	3.19	1.28	MEDIUM
NETWORK ACCESSIBILITY AND ITS CONVENIENCE	3.26	1.27	MEDIUM
LESSON TIME SCHEDULE	2.68	1.08	MEDIUM
INTERNET SPEED AND EFFICIENCY	3.27	1.29	MEDIUM
TYPE OF INTERNET SUBSCRIPTION	2.98	1.26	MEDIUM
TOTAL RESTRICTIONS	3.08	1.01	MEDIUM

Differences in perceptions of freshmen students according to gender and faculty variables

To achieve the second research question, independent sample t-test was and Anova analyses were used. Table 3 indicates that there are statistically significant differences between

the average responses of freshmen students according to gender in the facilitators that are related to "technical support". The value of (T) was (3.271) with a statistical significance of (0.001), in favor of males, meaning that the perceptions of male students towards "technical support" in the online classroom was greater

than female perceptions. While the differences were not statistically significant in the facilitators that are related to "Distance interaction", and also not significant in the "restrictions" that they encountered during learning via online classes, meaning that males and females interacted remotely in online classes equally, and also there was no difference between them in the constraints they faced in online classes during the Corona pandemic. Table 4 shows that there are statistically significant differences between perceptions of freshmen students according to faculty in relation to facilitators associated with "remote interaction", as T value was (-2.426)

with a statistical significance of (0.017), in favor of students of social science faculties. This means that students from social science faculties were more conducive to online interaction than students of science faculties. Even though the differences were not statistically significant in the facilitations related to "technical support" or the "constraints" they encountered as they learnt via online classes, the technical support provided to the students in both social science and scientific faculties was the same. There was also no difference between them in the constraints they faced while learning via online classes during the Corona pandemic.

Table 3: The results of the T-test of the significance of the differences between perceptions of freshmen students according to gender

Area	Gender	N	M	SD	DF	T	F	Sig
Online interaction	M	889	3.41	0.948	2116	-0.585	1.167	0.562
	F	1229	3.44	0.895				
Technical Support	M	889	3.06	1.127	2116	3.271	4.186	0.001
	F	1229	2.91	1.053				
Constrains	M	889	3.03	1.049	2116	-1.818	7.575	0.072
	F	1229	3.11	0.980				

Table 4: Results of T-test of the significance of differences between the means of the perceptions of fresh students according to faculty

Area	Faculty	N	M	SD	DF	T	F	Sig
Interaction	Science	1675	3.40	0.911	2116	-2.426	0.670	0.017
	Social Science	443	3.52	0.938				
Support	Science	1675	2.95	1.074	2116	-1.857	4.276	0.072
	Social Science	443	3.06	1.132				
Constraints	Science	1675	3.07	1.006	2116	-0.405	0.755	0.689
	Social Science	443	3.09	1.025				

Discussion

The study examined the perceptions of freshmen students from one public university in

Jordan about their experiences with online learning during the Corona pandemic. The researchers developed the instrument used in

this study and was divided into dimensions related to facilitators (online interaction and technical support) and constraints. Specifically, the study aimed to identify facilitators and constraints that faced by freshmen students who had not experienced face-to-face traditional education since they joined the university for a full year. Due to the conditions of the Corona pandemic, they were taught through online classes via the Microsoft Teams platform. The students demonstrated favorable perceptions toward online learning platforms. This result is consistent with previous research that demonstrated the effectiveness of online classes as distance learning tools (Wolverton, 2020; Kallarakal & Shankar, 2020; Elsaid et al., 2021).

Two factors appeared clearly from the experience of freshmen students. First, a significant factor is facility availability. Freshmen students' experience was favorable with "interaction via the Internet" such as interaction with colleagues, interaction with faculty members, interaction with assignments, interaction with discussions in class meetings, and interaction with recorded lectures. According to previous research, online interaction is crucial to the success of online classes (Martinez, Jacinto, & Montiel, 2021). Various options are available with Microsoft Teams such as direct meetings with students, sharing files, group participation, uploading assignments, recording lectures, and viewing videos and photos easily (Ruenz, 2021).

Freshmen students' experience was not very conducive to "technical support" such as "the university provides training on the optimal use of the Microsoft Teams platform", and "technical support staff provides information to solve technical problems when students use the Microsoft Teams platform in online classes". Several studies have noted the need for educational institutions to provide trained specialists for technical support in online classes as an essential element for facilitating success of education in these classes and assisting students and faculty members in utilizing distance learning platforms (Bai et al., 2021). Technical support also helps in reducing the challenges posed by the sudden transition from face-to-face education to teaching in virtual classes via the internet due to the Corona pandemic.

The second factor relates to constraints. To clarify; freshmen students in online classes

faced "restrictions" such as financial matters, accessibility, lesson time schedule, internet speed, and type of subscription network. This result is consistent with previous studies that showed that the sudden shift from face-to-face learning environment to online classroom instruction creates challenges resulting from poor skills of students in dealing with online technological applications, continuous internet outages, internet speed, living in remote areas, difference in the financial status for students' families, and the inability to own computers or smart phones (De Souza et al., 2020; Lieberman, 2020).

In the same context, the results showed that the perceptions of freshmen male students towards "technical support" in the online classroom experience are more positive than the perceptions of female students. This means that male students are satisfied with the level of technical support provided to them, unlike females whose perceptions did not indicate the same as those of males. The culture of Jordanian society, which allows males to communicate with others at any time, more than females, which is not allowed to do so, especially with males, this reason seems to have opened the way for males to communicate with technical support service providers more than females, and constantly ask about solutions to the problems they faced; so the technical support for male students was satisfactory. This result is consistent with previous research that confirms that the quality of technical support provided to learners in online classes is one of the most important factors that lead to the success of teaching in those classes (Gonzalez-Ramirez et al., 2021; Maphalala, Khumalo, & Khumalo, 2021).

Similarly, the results showed that the perceptions of freshmen students, whether males or females, are similar in the online classroom experience concerning the facilitators that are related to "remote interaction", as well as the "constraints" that they faced during learning via online classes, meaning that males and females perceptions were alike concerning their remote interaction in online classes, and there was no difference between them in the restrictions they faced in online classes during the Corona pandemic. It seems that the use of effective learning platforms in online classes such as the Microsoft Teams platform increases the chances of remote interaction. This result is

consistent with previous research that confirms that distance education is successful when special technological tools and effective learning platforms are available to help students to interact remotely, and solve the problems they face during their learning (Molea & Nastasa, 2020).

In the same context, the results showed that the perceptions of fresh students in humanities faculties concerning "online interaction" in the online classroom experience were more favorable than the perceptions of fresh students in scientific faculties. The courses that students in humanities faculties study are mostly theoretical, in which discussion is practiced, during which the student can participate in these discussions, which require the student only to communicate audibly or visually, without the need for complex technological skills, or speed internet. This may be reflected in their interaction in online classes through the Microsoft Teams learning platform.

While the courses that students in scientific faculties study need to conduct practical experiments, which require students to download simulation programs that need fast internet and complex technological applications that require advanced technological skills. As previously mentioned, students differ in their possession of technological skills, and in their areas of residence that are affected by the speed and efficiency of the internet, and this may be reflected in their interaction in the online classes; therefore, the remote interaction for fresh students in social science faculties was more satisfactory than that of fresh students in science faculties. This result is consistent with previous research that stresses the need to train students how to use interactive platforms from home in exceptional circumstances. Providing the appropriate conditions for learners in the technological infrastructure greatly helps their interaction (Barnett, Grafwallner, & Weisenfeld, 2021), while the lack of infrastructure for distance education restricts learners to effectively implement practical activities from a distance (De Souza et al., 2020). Online learning also has technological requirements and tools such as providing simulation programs, multimedia and displaying images and shapes, in order to help in the implementation of practical activities remotely (Williamson, Eynon, & Potter, 2020).

The teacher and student must also possess technological skills, in order to deal with these technological tools professionally and proficiently (Arruda, 2020).

The results also showed that the perceptions of freshmen students, whether they are from both types of faculties, are similar concerning the experience of online classes in the facilitations that are related to "technical support", as well as the "constraints" they faced during learning in online classes, meaning that all fresh students, whether they were from Humanitarian or scientific faculties have a favorable experience for the technical support provided to them in online classes, and there was no difference between them in the restrictions they faced in online classes during the Corona pandemic.

The target university has provided a technical support team for all its students in various faculties, to help them learn in online classes such as the Microsoft Teams platform, and to solve the problems they face. Information of the support team was displayed on the official university webpage. Higher education institutions in Jordan also provided free internet packages to their students in various faculties, and provided computers to a specific group of students under conditions. Perhaps these things made students' perceptions of restrictions in online classes equal among students regardless of faculty. This result is consistent with previous research that emphasizes the need to provide a trained and specialized technical support team that improves distance education, helps solve problems facing students, and reduces restrictions that negatively affect their learning, as well as providing a technological infrastructure for schools such as: interactive online platforms, various technological applications, computers connected to the internet for students and faculty members (Eynon & Potter, 2020).

Through the previously discussed, online classes using educational platforms are effective in distance education under special conditions. Online learning platforms such as Microsoft Teams provide facilities for effective online learning for students. On the other hand, as previously mentioned, students face restrictions while learning in online classes, due to the sudden transition towards fully distance learning. This experience is new to both of educational institutions and students, these

constraints can be mitigated by providing effective education platforms and appropriate technical support.

Conclusion

This study presents many theoretical and practical implications. This is the first study that deals with the topic of online education for freshmen students who have not received face-to-face education since they joined the university in a developing country due to the Corona pandemic. Developing countries such as Jordan faced due to the pandemic many challenges such as: poor internet connection, weak economic level, weak physical infrastructure (computers, smart phones), poor skills in dealing with distance education content, the spread of remote areas in those countries, and poor efficiency and speed of Internet.

From a theoretical perspective, this study provides a deep insight into a specific geographic context, and contributes to an understanding of the nature, acceptance, and adoption of online learning among learners who have been exposed to university education in online classes for the first time. It also provides insight into the role of technology in providing online education to learners in remote locations. In developing countries, such as Jordan, reliance on technology and the lack of a continuous connection to the Internet, financial matters, and the speed and efficiency of the Internet are among the most important obstacles that students face during their education through online classes.

From another perception, the study has practical implications related to the availability of the technological infrastructure for students, and the receipt of technical support from higher education institutions in online classes. Restrictions on higher education institutions for students' access to online classes, which hinders their learning, creates dissatisfaction among students, and poses a threat to higher education institutions, despite the fact that easy access to the internet is outside their management and control. Similarly, the conviction of faculty members with the idea of online classes helps break the restrictions that restrict their students during their learning; therefore, higher education institutions must take into consideration providing facilities for faculty members and students alike.

Higher education institutions must provide guidance and training for students, so that they can effectively engage in online classes. The study identified two trends; the first trend is related to students' perceptions about the facilities provided to them in online classes through the Microsoft Teams platform. The second one relates to the limitations they faced while learning in online classes during the COVID-19 pandemic.

The responses of freshmen students may be favorable towards the transition to online education due to the Corona pandemic. However, despite the positive responses about the facilities that were made available to them due to the use of the Microsoft Teams platform, students have faced limitations in financial matters, easy access to the Internet, availability of computers or smartphones, and the quality of technical support provided to them. These conclusions are important in a developing country such as Jordan to provide a better understanding of the shortcomings and benefits of online classroom learning through education platforms, thus contributing to the country's development.

The conclusions of the study are based on a research conducted on one public university in Jordan, and the study sample was limited to freshmen students who did not receive their face to face education inside the university at all. Students' perceptions of the facilities and limitations in online classes were examined using the Microsoft Teams platform as a model. More research should be done on other universities in Jordan, and on other education platforms. The implications of the study may be also applied to the implementation of online classes in post-pandemic scenarios in developing countries. More research should be directed towards addressing the issues raised in this study (internet efficiency, technical support, financial matters, technological infrastructure), to improve teaching in online classrooms in developing countries, such as Jordan.

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