

Undergraduates' Perspectives and Challenges of Online Learning during the COVID-19 Pandemic: A Case from the University of Jordan

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Abstract

The COVID-19 pandemic has affected many countries and has had a serious impact on education around the globe. Jordan has followed strict nationwide procedures to stop the spread of the virus, one of which has been school closures and a shift to online learning. The purpose of this study was to investigate students' perspectives of online learning at the University of Jordan and determine the challenges they experienced as a result of shifting from face-to-face learning to a fully online learning environment. The study took a quantitative approach, using a web-based questionnaire to collect data from 398 undergraduate students enrolled at the School of Educational Science at the University of Jordan. The data were analyzed using descriptive statistics. The results revealed that students preferred an online learning environment to face-to-face learning and perceived the former as being very useful. However, students encountered some challenges, such as mental health issues (anxiety and stress), unreliable internet connections, slow e-learning platforms and services, a lack of information and communication technology skills, poor time management skills, and distractions. These findings highlight the importance of providing students with counseling services for mental health, technical support, and training in time management skills to improve their online learning experiences.

Keywords: *online learning; student perspectives, challenges, undergraduate, COVID-19*

Introduction

The new coronavirus (COVID-19) emerged in Wuhan City, China, at the end of 2019 (Chahrour et al., 2020) and quickly spread to other countries. The World Health Organization (WHO, 2021) reported that there have been 99,864,391 confirmed COVID-19 cases and 2,149,700 deaths, and the numbers are still increasing. The COVID-19 pandemic has affected almost the entire world, and countries have closed their borders and restricted or completely terminated immigration (McCorkle, 2020).

This pandemic has negatively affected the economy, social life, and educational facilities and services around the world (Cakin, & Kulekci Akyavuz, 2021; Farooq et al., 2020; Niemi & Kousa, 2020; Nnebedum, Obuegbe, & Nwafor, 2021; Paudel, 2021; Unger & Meiran, 2020). Hundreds of

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millions of students have been affected because of nationwide lockdowns, which have taken place in the vast majority of the world's countries (UNESCO, 2020). Educational institutions suddenly shifted their courses away from a face-to-face approach to online classes to try to stop the spread of the coronavirus. As a result of this quick shift in the instructional delivery approach, decision makers, as well as instructors, initiated the exploration of opinions, aids, and resources for transferring face-to-face courses to online teaching.

Several technological tools and materials have been used in online courses in order to activate learning and instructional processes during the COVID-19 pandemic, including synchronous and asynchronous communication tools, such as Zoom, Microsoft Teams, Moodle, Blackboard, and Google Classrooms. The selection of the technological tools to be used was based on their convenience for the instructors or administrators and/or the availability of the tools. This quick and necessary transition forced schools to use the available tools to produce online learning resources and environments for different academic disciplines (Kaur, 2020). As a result, learning and teaching processes have faced several challenges during this pandemic (Crawford et al., 2020).

Educational institutions must persist in addressing several short-term online learning issues and challenges, such as those regarding pedagogical practice and long-term effects, such as budget cuts, the failure to meet students' basic needs, and mental health issues (Ajilouni & Almahaireh, 2020; Araújo et al., 2020; Yang et al., 2020). In contrast, Rajab et al. (2020) stated that other critics have expected a constructive (positive) influence of this pandemic. They predicted that it would lead to wider online- and technology-based educational acceptance. The practices of online learning can significantly encourage educational equity through offering flexibility in terms of the learning place and time; enhancing administrative, communicative, and educational qualities; and supporting learning using limited resources and infrastructure (Isaac et al., 2019).

Novikov (2020) indicated that the speed of adaptation to online learning is specified by students' learning abilities in addition to different psychological and technological factors. The efficiency of online learning varies between educational institutions around the world. It will be more efficient in digitally advanced countries and less efficient in rural, marginalized communities and in countries that are used to handling academic and administrative activities with a more face-to-face approach (Basilaia & Kvavadze, 2020; Salam et al., 2017; Wains & Mahmood, 2008).

When it comes to the Jordanian educational setting, online classes were recently established as the mode of instructional delivery as a result of the COVID-19 pandemic. Previously, online classes had not been part of the regular programs in Jordanian public schools and universities, but several universities and schools offered e-learning tools, such as the learning management systems (LMSs) of Moodle, Blackboard, Edunation, and Darsak, which were utilized to help teachers and their students to navigate through the learning material effectively and to enable online collaborations.

The University of Jordan adopted a blended learning approach, which incorporates the advantages of online and face-to-face learning (Alameri et al., 2019). More specifically, during the COVID-19 pandemic, the University of Jordan was among several institutions that quickly transitioned to online courses in order to maintain its learning and teaching processes by using LMS Moodle and Microsoft teams for asynchronous and synchronous communication.

The benefits of online learning and the challenges that students and instructors face have been specified in several studies, but none of these studies considered the influence of the COVID-19 pandemic on online learning from Jordanian students' perspectives and in terms of the particular challenges they face. Studying and examining students' perspectives and the challenges regarding online learning across different educational institutions in Jordan will help stakeholders and decision makers evaluate and enhance the quality of online learning under the new circumstances. Toquero (2020) highlighted the need to improve curriculum practices to make them more responsive to students' needs. He recommended that educational institutions conduct studies and document the effects of the COVID-19 pandemic on the educational system. Only a few studies have examined the effect of the COVID-19 pandemic on learning processes among Jordanian students. These issues stress the importance of this research in terms of obtaining an improved understanding of students' views and the challenges of online learning during this pandemic in the context of online education in Jordan.

Aim of the Study

Based on the underlying problem, this study aims to reveal the perspectives of undergraduate students and the challenges they face with regard to online learning at the School of Educational Sciences (SOES) at the University of Jordan during the COVID-19 pandemic by finding answers to the following research questions:

1. What are the undergraduate students' perspectives of online learning at the SOES at the University of Jordan?
2. What are the challenges that undergraduate students face during online learning in various subjects at the SOES at the University of Jordan?

Literature Review

Online learning is more convenient since it permits students to learn at their own pace and in their own time (Sit et al., 2005). In online learning, teachers and their students are separated by a physical space. Technology is used to bridge this spatial gap and acts as the medium of delivery for the teaching and learning experience to make it more interactive for learners. This new mode of instruction provides students with appropriate flexibility, and it can be performed at any time and in any place without the need to be on a campus.

However, there are a number of influences that impact the effectiveness of an online learning environment. Some of these include distractions and family obligations, time management skills, motivation, and the availability of resources (Kalman et al., 2020). In addition, several challenges exist regarding the development of learner-centered settings, for example, those concerning academic staff who progressively require higher levels of technological competency and proficiency in addition to their regular academic workloads (Gillett-Swan, 2017; Swan, 2005).

One theory connected with online learning is online collaborative learning theory. This theory concentrates on the internet as a learning resource for promoting collaboration and knowledge construction (Demuyakor, 2020). In addition, constructivism is one of the most promising avenues for using technology in education as it is applied in distance education (Doolittle & Hicks, 2003; Moller, 1998). Constructivism highlights the active role played by learners in the construction of knowledge through social interaction with one another. With the facilitation of the instructors, learners use their individual experiences and prior knowledge to add to their new experiences (Huang, 2002; Ornstein & Hunkins, 1998). Constructivism theory has a great impact on both the learner and the instructor as the instructor's role changes from that of someone who relays knowledge to that of a facilitator who guides learning. Learners gradually become more active in acquiring knowledge. This impacts the teaching/learning process in terms of integrating with technology in education (Aldoobie, 2015).

Constructivist principles afford ideas and thoughts that help online instructors to build learner-centered environments and make the whole process more interactive and collaborative (Jonassen et al., 1995). To align with constructivism, the environment needs to be active, collaborative, constructive, intentional, conversational, conceptualized, and reflective. Instructional designers can incorporate constructivist strategies to improve their pedagogical practice and move toward a more progressive learning environment with technology as a support system (Tenenbaum et al., 2001).

Online instructors can implement the instructional principles derived from constructivism, such as interactive learning, collaborative learning, facilitative learning, authentic learning, learner-centered learning, and high-quality learning, into their teaching and the designing of online courses (Huang, 2002). In fact, establishing a rich learning environment is one of the most vital parts of constructivist instruction (Carwile, 2007). Under this new paradigm, several tools and technologies can be used to support online learning and facilitate instruction, such as online discussion groups and hypermedia (Huang, 2002).

Regardless of the theory or model of learning, there are certain characteristics that help students to succeed in online learning, such as adaptability, organizational skills, and self-awareness (Kalman et al., 2020). Ramachandran and Rodriguez (2020) demonstrated that undergraduate students who enrolled in an online chemistry course during the pandemic benefited the most from a mixture of watching and recording live lectures, the opportunity to reflect on course material, working on problem sets as a group, and extra practice such as homework and worksheets.

Many researchers have tried to study online instruction modes related to the COVID-19 pandemic. Some of these studies investigated the perspectives and/or perceptions of students with regard to online learning (Ananga, 2020; Atabey, 2021; ElSaheli-Elhage, 2021; Hebebcı, Bertiz, & Alan, 2020; Ilhan, Kaba, & Sin, 2021; Marpa, 2021). For example, Zhu et al. (2020) conducted a study on university students and found that students' attitudes toward online learning were generally positive and increased on completion of the course, and that their continuous intention to learn online was significantly predicted by self-regulatory factors and attitudes, mediated through perceived online social interactions. Kalman et al. (2020) also conducted a study among undergraduate institutions in Georgia and found that students in upper-level chemistry courses fostered adaptability, improved their organizational and self-awareness skills, developed a passion

for the subjects they learned, and became more successful in their online learning, even with a difficult subject matter.

Similarly, Agarwal and Kaushik (2020) conducted a study on 77 pediatric students who joined online courses using Zoom during the COVID-19 pandemic, and they revealed that the majority of the participants found online learning relevant to their learning needs and clinical practice as they found it to be interesting and enjoyable and they were motivated by it; they all agreed that online classes should become a part of the medical postgraduate curriculum. In his study, Demuyakor (2020) demonstrated that higher education Ghanaian students enrolled in online courses in China perceived online learning as being very beneficial; moreover, the majority of them agreed that online learning is effective.

In contrast, Owusu-Fordjour et al. (2020) reported a negative impact of the COVID-19 pandemic on Ghanaian students' learning. Nambiar (2020) also revealed that the majority of Indian university students preferred a face-to-face teaching method to online teaching. According to their perceptions, online teaching lacked quality. Similarly, Adnan and Anwar (2020) also conducted a study that explored the attitudes of Pakistani students toward higher education distance learning; it highlighted that distance learning cannot produce favorable results in underdeveloped countries, such as Pakistan, and reported several barriers. Likewise, Xhelili et al. (2021) investigated Albanian students' perceptions of online learning during the COVID-19 pandemic and found that students had a more positive attitude toward the classroom learning environment. In Jordan, no study has yet investigated students' perspectives or attitudes toward online learning during the COVID-19 pandemic, but Al-Shboul et al. (2017) observed a positive perspective of the implementation of information and communication technology (ICT) in teaching and learning processes before the pandemic.

There is a clear gap in the literature with regard to the challenges and influences of online learning during this pandemic in the context of Jordan. To enhance online learning quality, researchers in some countries explored the obstacles and challenges facing students during their online learning experiences. For example, Farooq et al. (2020) conducted a study in Pakistan and identified the challenges medical students have faced during the pandemic, which related to understanding the dynamics of online learning, internet connectivity, engagement, assessments, and the lack of faculty member training and institutional support.

Koi-Akrofi et al. (2020) conducted an analysis of the current literature on the challenges of online learning and found that such learning entails more challenges than other face-to-face and blended learning. The principal ones related to the lack of adequate time to study and the shortage of teaching and learning materials. Xhelili et al. (2021) evaluated Albanian students' perceptions of their online learning and the challenges they faced with regard to it during the COVID-19 pandemic. The results indicated that the major challenges students encountered were the unavailability of an internet connection and the lack of technological devices.

In Pakistan, Adnan and Anwar (2020) reported that the majority of Pakistani higher education students could not access the internet due to several issues, and as a result, they lacked interaction with their instructors. Meanwhile, in Ghana, Owusu-Fordjour et al. (2020) employed quantitative research that involved 214 Ghanaian students, demonstrating that they were unable to study effectively as e-learning posed challenges for the majority of them due to their limited access to the internet and their lack of technical skills. Similarly, Demuyako (2020) found that the major challenges faced by Ghanaian students studying online were the cost of internet, learner isolation, differences in time zones, and slow internet speed. In India, Nambiar (2020) investigated how Indian university students face some barriers, like technical issues, a lack of structure, problems concerning the flow of their classes, and a lack of interest and motivation.

Other researchers, like Agarwal and Kaushik (2020), investigated how medical and science majors encountered time limitations in terms of the sessions as well as technical issues. Similarly, Rajab et al. (2020) reported some challenges that the medical students of the College of Medicine of Alfaisal University in Saudi Arabia faced, including communication issues, assessments, the use of ICT tools, online experiences, mental health influences such as anxiety or stress, time management, and technophobia. Furthermore, Ramachandran and Rodriguez (2020) identified distractions and a lack of focus and motivation as challenges among undergraduate chemistry students.

In the Jordanian context, the literature generally lacks studies that have examined the challenges faced by online students, and this is the first study to examine the challenges that online students have faced during the pandemic. Al-Shboul (2019) identified major factors that affect faculty members in Jordanian universities when using ICT in the teaching and learning process: a lack of ICT skills, pedagogical training, confidence, a suitable educational system, and software, and the

inflexible structure of the educational systems and curricula. Similarly, Al-Shboul et al. (2017) revealed that the majority of Jordanian universities are not interested in ICT services because they do not trust such technology and have financial issues with regard to owning such services.

During the COVID-19 pandemic, a few studies have been conducted to explore the challenges students face with their online learning. Almaiah et al. (2020) employed a thematic analysis study by conducting interviews with 61 participants from 6 universities in Jordan and Saudi Arabia. The results showed that management, technical, and financial issues were the main difficulties that hindered e-learning system usage. Although the study was conducted in 6 universities in Saudi Arabia and Jordan, all students in the study were from King Faisal University in Saudi Arabia, while faculty members in the study were from universities in Jordan. Similarly, Rababah (2020) conducted a study of English language students from Jadara University in Jordan. It included just twelve students and showed the challenges that they faced, with three of these being the scarcity of effective training, the lack of accessibility, and the inconsistent teaching styles of instructors. Furthermore, Almaiah et al. (2020) identified that these challenges varied between countries with relation to the differences in their cultures, contexts, and readiness.

To sum up, there is conflict and ambiguity in the results of the studies regarding the critical challenges and aspects that influence the effectiveness of online learning during the COVID-19 pandemic. For instance, Jordanian studies are very limited in number, and therefore researchers should conduct more studies to investigate the barriers and challenges faced by Jordanian students. It is the objective of this current study to complement the existing literature by exploring Jordanian undergraduates' perspectives on online learning during the COVID-19 pandemic and the main challenges they face. This could provide more insight into the challenges faced in developing countries.

Methods

Design

We implemented survey-based research with a quantitative approach to collecting data to examine the perspectives of undergraduates from the SOES at the University of Jordan and the challenges they face in terms of online learning during the COVID-19 pandemic. This design used an electronic survey, which was appropriate for the purpose of the study, especially during the COVID-19 pandemic when students are off campus. Prior to the COVID-19 crisis, the University

of Jordan offered some blended learning courses that merged face-to-face learning with online learning. During the COVID-19 pandemic, all courses were shifted to the online learning mode.

The Participants, Data Collection, and Procedure

A total of 2116 undergraduate students from the SOES were invited to participate in the study. However, the study sample comprised 389 undergraduate students (362 females and 27 males) who were enrolled in at least one online course during the first semester of the 2020/2021 academic year. This was a sufficient sample for the objective of this study since it is more than the required sample size specified by the Raosoft sample size calculator, with a 5% margin of error and a 95% confidence interval.

The required consent was obtained from the institutional board at the University of Jordan and from the study participants before starting the study. Data were gathered using an online questionnaire. The researchers asked undergraduate instructors in the SOES to distribute the web-based questionnaire hyperlink to their students using several tools (e.g., Microsoft Teams, email, Moodle, and WhatsApp) and to encourage them to respond.

A Perspectives and Challenges of Online Learning Questionnaire (PCLQ) was used to collect data on undergraduates' perspectives regarding the new online learning experience. All undergraduate students who were enrolled in an online course at the SOES were invited to complete the questionnaire through their instructors. Data were collected over the two weeks following the students' exposure to the online learning experience, where the learning took place via both asynchronous and synchronous tools, including Moodle and Microsoft Team, respectively. The result was a convenient sample consisting of all the students who were willing to participate in the study. Table 1 shows the demographic characteristics of the respondents.

Table 1

Demographic characteristics of the respondents (N = 389)

No	Characteristic		F	P
1.	Gender	Male	27	6.9
		Female	362	93.1
2.	Major	Library and information science	41	10.5
		Classroom teacher	141	36.2
3.	GPA	Early childhood education	86	22.1
		Counseling and mental health	61	15.7
		Special education	60	15.4
3.		Excellent	61	15.7

		Very good	216	55.5
		Good	100	25.7
		Poor	12	3.1
4.	School year	Freshman	59	15.2
		Sophomore	134	34.4
		Junior	76	19.5
		Senior	120	30.8
5.	Online learning experience	Beginner	47	12.1
		Intermediate	239	61.4
		Advanced	103	26.5

Note. F: frequency, P: percentage, GPA: grade point average.

In total, 389 students responded to the questionnaire (93.1% were female and 6.9% were male). Among all the educational science majors, 10.5% were from library and information science, 36.2% were classroom teacher majors, 22.1% were from early childhood education, 15.7% were from counseling and mental health, and 15.4% were special education majors. The cumulative average of the respondents ranged from poor to excellent. A total of 15.2% of the respondents reported that they were freshmen students, and 34.4%, 19.5%, and 30.8% were sophomores, juniors, and seniors, respectively. Among the respondents, 12.1% had little or no experience in online learning (beginners), 61.4% of them had an intermediate level of experience, and 26.5% reported having advanced experience in online learning. Table 1 shows the demographic characteristics of the respondents.

Study Instrument

To gather data for this study, a web-based, self-administered questionnaire called the PCLQ was developed based on the existing literature in the domain of students' perspectives of online learning and the challenges faced (Aboagye et al., 2020; Adnan & Anwar, 2020; Amir et al., 2020; Owusu-Fordjour et al., 2020; Rajab et al., 2020; Ramachandran & Rodriguez, 2020) to assess the experiences of undergraduates from the SOES. The instrument comprised 29 items divided into three parts: demographic information (5 items, 1–5), undergraduates' perspectives (8 items, 6–13), and the challenges students face (16 items, 14–29). Responses were measured on a 5-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree).

The questionnaire content validity was reviewed and verified by nine experts from the Departments of Curriculum and Instruction, Educational Psychology, and Educational Technology from the Schools of Educational Sciences at several Jordanian universities. Before the beginning of the data collection process, to ensure internal validity and reliability, a pilot test of the

questionnaire was administered to a pilot sample of 50 undergraduate students (41 females and 9 males) from the study population, who were then excluded from the study sample. Pearson's correlation coefficients and Cronbach's alphas were extracted separately for each subscale.

The internal validity correlations for the undergraduates' perspectives subscale ranged between 0.65 and 0.80 and were all statistically significant at $p < 0.05$, whereas the same ranged between 0.68 and 0.78 for the challenges in online learning subscale and were all statistically significant at $p < 0.05$. The researchers calculated the Cronbach's alphas to determine the internal consistency and reliability of the instrument: 0.89 for the undergraduates' perspectives subscale and 0.94 for the challenges in online learning subscale. These values revealed that the research instrument is valid and reliable with the same number of items. The findings related to the students' perspectives of online learning were indicated on a 5-point Likert scale with equal 1.33 intervals in between the points. The ranges for these mean values were as follows: 1.0–2.33 indicated a low degree, 2.34–3.66 indicated a moderate degree, and 3.67–5.0 indicated a high degree.

Data Analysis

The responses to the student questionnaire were first segregated into clusters of items associated with participants' demographics (Items #1-#5) reported earlier in Table 1 and the two research questions (e.g. Items 6-13 and 14-29). These item data were analyzed using the Statistical Product and Service Solutions (SPSS) to provide descriptive statistics, such as item means, standard deviations, and response frequencies and percentages. The descriptive results are summarized and discussed under the specific research questions in the following text.

Results and Discussion

Research Question 1: What are the undergraduate students' perspectives of online learning at the SOES at the University of Jordan?

To answer the first research question on the perspectives of undergraduate students at the SOES regarding online learning (items 6–13 in the questionnaire), the researchers calculated frequencies, percentages, means, and standard deviations for each statement of the perspectives dimension. As shown in Table 2, 62% of the respondents reported that they can study more efficiently with online learning when compared to face-to-face learning ($m = 3.68$), and 67.6% of the respondents preferred online learning to face-to-face learning ($m = 3.90$). This could be attributed to the fact

that students feel much safer at home with regard to the risk of getting infected with Covid-19. Besides, they do not have to go onto the campus, use transportation, or waste their time. However, this finding was inconsistent with Amir et al.'s (2020) findings, which reported lower preferences toward online learning compared with traditional classroom methods, as well as with Xhelili et al.'s (2021) study, which found that students had a more positive attitude toward a classroom learning environment.

Furthermore, 66.6% of respondents agreed that the online learning mode provides an effective way to explore the educational materials ($m = 3.78$); 58.6% of them feel comfortable communicating digitally ($m = 3.61$), while only 40.1% of students consider that completing their group projects and assignments digitally is an easy task, with the lowest mean ($m = 3.15$). This may be attributed to the absence of physical presence, which is different in a face-to-face classroom where there are more opportunities for learners to interact with each other and form social connections. In addition, some group members may have problems establishing contact with each other to talk about the work for group projects due to different timetables and locations. Furthermore, communicating digitally does not include body language and/or facial expressions, which can help individuals to better understand each other in other situations. These results are in line with the findings of Adnan and Anwar's study (2020), which showed that 77% of the respondents were comfortable with communicating digitally, while 45% of them could not easily complete their digital group projects and assignments.

Table 2

Undergraduate responses regarding their perspectives on online learning

No	Statement	SD P(F)	D P(F)	N P(F)	A P(F)	SA P(F)	M±SD
	Online learning is more effective than face-to-face learning	1% (4)	14.7% (57)	22.4% (87)	39.1% (152)	22.9% (89)	3.68±1.016
	Online learning is preferred to face-to-face learning	2.8% (11)	9.8% (38)	19.8% (77)	29.3% (114)	38.3% (149)	3.90±1.105
	Online learning enables the effective exploration of educational materials	3.1% (12)	12.3% (48)	18% (70)	36.5% (142)	30.1% (117)	3.78±1.099
	Online learning allows for comfortable electronic communication	2.1% (8)	15.9% (62)	23.4% (91)	36.5% (142)	22.1% (86)	3.61±1.061
	Online learning makes it easier to complete group projects and assignments	4.9% (19)	29.3% (114)	25.7% (100)	26% (101)	14.1% (55)	3.15±1.138
	Online learning saves time for students	4.9% (19)	27% (105)	28% (109)	27.2% (106)	12.9% (50)	3.16±1.109
	Online learning enhances knowledge acquisition	3.1% (12)	20.1% (78)	29% (113)	30.8% (120)	17% (66)	3.39±1.080
	Online learning is perceived as a very useful delivery mode in the SOES	3.6% (14)	11.3% (44)	21.1% (82)	28.3% (110)	35.7% (139)	3.81±1.146
	Total						3.56±0.829

Note. F: frequency, P: percentage, SD: strongly disagree, D: disagree, N: neutral, A: agree, SA: strongly agree.

As shown in Table 2, 40.1% of respondents agreed that online learning saved them time ($m = 3.16$). This means that 60% of the respondents did not benefit from the flexibility of online learning and did not find that it saved them time. This difference between students may be related to several potential factors. One possibility may be that some students found it difficult to navigate the materials online and had to spend more time figuring things out. Another possibility is that some students found it difficult to complete group work efficiently online. In addition, not having reliable internet access at home (or internet access at all) may have forced some students to go elsewhere to do their work. Some students may have also faced difficulties in terms of time management. This suggests that decision makers and instructors should investigate the reasons behind this finding and emphasize and foster time management and self-regulation skills to make the online learning experience a successful one. Researchers have indicated that self-regulated learners know how to manage their time (De Waard & Kukulska-Hulme, 2019). This result conflicts with an earlier study (Amir et al., 2020), which showed that 87.9% of respondents found that online learning gave them more time to study.

Of the respondents, 47.8% reported that online learning enhanced their knowledge acquisition ($m = 3.39$), and 64% considered online learning at the SOES to be a very useful mode for learning, with the highest mean of the scale ($m = 3.81$). In general, the students were optimistic about online learning ($m = 3.56$). Their positive experiences may be related to the benefits and advantages of such learning, such as the flexibility of learning from any place and at any time. This flexibility allows students to learn from the comfort of their homes, and they can access learning materials multiple times for better comprehension. They also save time and money because there is no need for transportation, and they are able to simultaneously collaborate with others (Mirkholikovna, 2020; Omelchenko, 2020). Moreover, undergraduate students' experiences with online learning in the Spring and Summer Semesters of 2020 during the COVID-19 pandemic affected their positive perspectives.

Research has found that for a learning environment to be effective, it should be open, active, creative, collaborative, motivating, flexible in terms of learning tools, and receptive to students' needs by providing them with direct experience and immediate feedback (Khlaisang & Mingsiritham, 2016; Khlaisang & Songkram, 2019). At the University of Jordan, a strong technological infrastructure was established to provide both synchronous and asynchronous

communication tools to enhance interaction among students and instructors. This was critical given that social interaction is a vital factor in the success of online learning.

Social interaction occurs when students participate in tasks and learning activities that are facilitated by technology (Tick, 2013). The University of Jordan adopted the Moodle LMS in 2012 to support its face-to-face learning mode, and, during the COVID-19 pandemic, it was used as the main tool for asynchronous communication when classes went online. Instructors were able to use it to upload learning materials and assignments, create discussion forums, and post announcements about their courses. Moodle can be accessed by all registered students from anywhere in the world using internet browsers (Abbad et al., 2009; Almarabeh et al., 2014). Microsoft Teams—a cloud-based app that brings meetings, channels, files, conversations, and apps to Microsoft 365—was also used to support synchronous communication for online learning. Instructors at the SOES incorporated these technologies into various settings for a variety of disciplines to support online learning.

The study's respondents and their instructors belong to the SOES, which specializes in education with the intention of preparing highly skilled and motivated teachers, some of whom belong to the Educational Technology Department. This may be one of the contributing factors to generating this positive perspective regarding online learning, as the students are taught to have a positive and constructive attitude toward different teaching methods. Additionally, some may have responded positively to online learning during the pandemic out of concern for their health and safety. Students at the SOES learn about teaching and learning strategies as their instructors, who are specialized in the field of education, implement constructive principles and create rich learning environments with the available resources in order to offer high-quality education (Martin & Tapp, 2019). These factors help students achieve the intended learning outcomes for the course and contribute to their perceptions regarding the use of online teaching as being suitable and advantageous. The study findings align with Demuyakor's (2020) results, which found that students rated the effectiveness of online learning positively. However, the results are contrary to Owusu-Fordjour et al.'s (2020) findings, in which online learning was reported to have a negative impact among Ghanaian students.

Research Question 2: What are the challenges that undergraduate students face during online learning in various subjects at the SOES at the University of Jordan?

To answer the second research question regarding the challenges that undergraduate students face during online learning (items 14–29 in the questionnaire), the frequencies, percentages, means, and standard deviations for each statement in the challenge dimension and for the whole scale were calculated. Table 3 displays the findings regarding the challenges students faced when classes at the SOES went online due to COVID-19.

Table 3*Online learning challenges faced by undergraduate students*

No	Statement	SD P(F)	D P(F)	N P(F)	A P(F)	SA P(F)	M±SD
14.	Online learning is more expensive than face-to-face learning	11.8% (46)	17.2% (67)	32.1% (125)	28.5% (111)	10.3% (40)	3.08±1.157
15.	The internet connection is unreliable	5.4% (21)	13.6% (53)	24.7% (96)	37.8% (147)	18.5% (72)	3.50±1.104
16.	E-learning platforms and services are slow	8% (31)	17.7% (69)	26.2% (102)	32.9% (128)	15.2% (59)	3.30±1.161
17.	Adequate hardware and software for online learning are not available in my house	9.3% (36)	17% (66)	25.2% (98)	34.7% (135)	13.9% (54)	3.27±1.172
18.	I have mental health issues (e.g., anxiety, stress) that affect my online learning	8.2% (32)	8.7% (34)	20.8% (81)	37.3% (145)	24.9% (97)	3.62±1.186
19.	I am not motivated to learn online	12.1% (47)	18.5% (72)	27.8% (108)	29.8% (116)	11.8% (46)	3.11±1.196
20.	I cannot focus in an online learning environment and cannot avoid distractions	6.7% (26)	16.2% (63)	27.8% (108)	32.9% (128)	16.5% (64)	3.36±1.135
21.	I have poor time management skills, which affect my online learning capabilities	8.5% (33)	15.4% (60)	18.8% (73)	35.7% (139)	21.6% (84)	3.47±1.226
22.	I have poor ICT skills, which affect my online learning	8.2% (32)	17.7% (69)	31.1% (121)	29.3% (114)	13.6% (53)	3.22±1.139
23.	The technical assistance offered is not adequate	11.1% (43)	21.3% (83)	30.6% (119)	27.5% (107)	9.5% (37)	3.03±1.146
24.	I have technophobia (a fear or dislike of advanced technology), which affects my online learning	16.5% (64)	24.2% (94)	30.1% (117)	21.6% (84)	7.7% (30)	2.80±1.178
25.	The isolation of students in online education affects my learning	10.8% (42)	19.3% (75)	31.6% (123)	27.2% (106)	11.1% (43)	3.08±1.156
26.	The instructor's interaction and feedback are inadequate	14.1% (55)	26.5% (103)	28.3% (110)	24.2% (94)	6.9% (27)	2.83±1.151
27.	The teaching strategies that are used are not appropriate	9.8% (38)	23.1% (90)	32.4% (126)	22.9% (89)	11.8% (46)	3.04±1.151
28.	The learning material is poor quality	8.2% (32)	19% (74)	31.9% (124)	31.1% (121)	9.8% (38)	3.15±1.096
29.	The assessment and evaluation methods are not suitable	8.7% (34)	19% (74)	30.8% (120)	28.5% (111)	12.9% (50)	3.18±1.145
Total							3.19±0.840

Note. F: frequency, P: percentage, SD: strongly disagree, D: disagree, N: neutral, A: agree, SA: strongly agree.

Regarding financial issues, 38.8% of respondents agreed ($m = 3.08$) that online learning is more expensive than face-to-face learning, which may result from the cost of internet access and the equipment and software required for online learning. Furthermore, 56.3% of respondents reported having an unreliable internet connection, with the second highest mean of 3.5. This indicates that

many students experience difficulties in joining online synchronous meetings, downloading course materials, and so on, which affects their learning and comprehension. Many students have inadequate internet capacities and speeds in their homes. These results are congruent with the findings by Farooq et al. (2020) and Xhelili et al. (2021), who found that internet connectivity is one of the major challenges students encounter. This result suggests that the Ministry of Communication should encourage the internet service provider (ISP) in Jordan to increase internet coverage and bandwidth. Moreover, 48.1% of participants agreed with the statement that e-learning platform services are slow ($m = 3.3$), which suggests that decision makers at the University of Jordan should enhance the school's technological infrastructure. Of the respondents, 48.6% reported that they did not have adequate hardware and software at home for online learning, with a mean of 3.27. This aligns with Owusu-Fordjour et al.'s (2020) and Xhelili et al.'s (2021) findings, which indicated that the lack of internet access and technological devices were main challenges. In addition, 77.6% of the respondents reported not having adequate learning resources to support self-learning at home. This result agrees with that of the study by Koi-Akrofi et al. (2020), who found that online learning has more challenges than the face-to-face equivalent.

In terms of mental health, 62.2% of the respondents reported having issues, with the highest of all the means in the challenges scale ($m = 3.62$). This indicates that students need counseling services or specific strategies to help them deal with mental health issues, such as anxiety and stress, which affect their online learning. Study respondents also emphasized the need for research, particularly from research-based centers like the Educational Research and Development Center at the University of Jordan, to guide the school and community during the pandemic. This finding concerning mental health issues among students is consistent with that of Ramachandran and Rodriguez (2020), who reported that 21% ($N = 259$) of respondents in their study had mental health issues, such as depression and anxiety. This was also in line with studies conducted by Ajlouni and Almahaireh (2020), Amir et al. (2020), and Rajab et al. (2020), who found high levels of anxiety regarding the coronavirus among undergraduate students.

Of the respondents, 41.6% reported having a lack of motivation ($m = 3.11$), and 49.4% of respondents said they experienced difficulties focusing on online learning ($m = 3.36$). Motivation has been recognized as a crucial factor in learning, in developing and maintaining a sense of community, and in achieving intended outcomes in an online learning setting (Hartnett, 2016).

This is consistent with Amir et al.'s (2020) and Ramachandran and Rodriguez's (2020) research, which investigated the lack of both motivation and focus and found that as many as 62% of respondents experienced these issues.

Regarding poor time management skills, 57.3% of respondents reported facing this challenge ($m = 3.47$). This emphasizes the need to improve students' time management skills by offering them training sessions. Time management is the most critical skill that aids students in managing online course requirements (Roper, 2007). This finding is aligned with that of Rajab et al. (2020), who stated that time management is one of the challenges students faced while learning online. Furthermore, 42.9% of respondents reported poor ICT skills ($m = 3.22$), and 37% of respondents reported that they had insufficient technical guidance ($m = 3.03$). These results are congruent with the findings of Owusu-Fordjour et al. (2020) and Rababah (2020), who reported the lack of technical skills as a challenge. These findings suggest that the SOES should provide training to help students enhance their ICT skills, and that administrators should offer more technical guidance through online technical support or additional supportive manuals and videos to guide students on how to use the online system and how to solve common technical problems that they may encounter during their online learning.

Only 29.2% of respondents reported having technophobia, a condition that causes people to worry about or not be confident in their ability to deal with computer hardware and software, while 40.7% did not experience such a challenge, and 30.1% of the students responded neutrally. This item had the lowest mean compared to other items in the scale (Table 3). This may be due to students' increased experience with online learning and ICT literacy, which may have helped them become familiar with the technology and the required software and may have reduced or eliminated their technophobia. This finding is, to some extent, consistent with a previous study (Rajab, 2020), where technophobia is considered a challenge.

Of the respondents, 38.3% felt isolated from other learners ($m = 3.08$), and 33.1% reported that they experienced a lack of interaction with instructors and considered the instructor's feedback to be inadequate ($m = 2.83$). A total of 34.7% of respondents felt that their instructor used an inappropriate teaching strategy ($m = 3.04$). In terms of the quality of the learning material, 40.9% of respondents considered it to be lacking ($m = 3.15$). This may be due to the rapid transition to online learning because of the COVID-19 pandemic. Preparing computer-based materials is not an

easy task; it requires time, effort, resources, and a team. However, these results suggest that instructors should reevaluate the learning materials they offer and provide more e-learning content. Unsuitable assessment and evaluation methods were reported by 41% of respondents ($m = 3.18$). This may result from new approaches to assessment that students are not accustomed to. This finding suggests that online instructors should enhance their assessment and evaluation methods. These results are in line with previous studies by Farooq et al. (2020) and Rajab (2020), who considered the lack of faculty member training and assessment as challenges, while they are inconsistent with Amir et al.'s (2020) findings.

The overall mean for all challenges in the scale was 3.19 (Table 3), which reflects a moderate challenge level experienced among undergraduate students at the SOES. The most prevalent challenge was an unreliable internet connection, followed by mental health issues. These findings highlight the internal barriers that undergraduates face during online learning, such as a reduction in motivation, a lack of focus, and poor skills. The study also highlights external issues students face related to infrastructure, instructors, internet connectivity, and the quality of learning materials.

Conclusion

The COVID-19 pandemic has impacted educational institutions across the world. In Jordan, all the learning methods shifted to online instruction. This study examined students' perspectives of online learning and the challenges faced by the undergraduates of the SOES at the University of Jordan. The findings of this study offer valuable information about the perspectives of undergraduates of the SOES at the University of Jordan with regard to the online learning mode implemented during the COVID-19 pandemic. To obtain information about this phenomenon, a web-based questionnaire was developed, and data were collected from 398 respondents and analyzed using SPSS. The challenges faced by online learning during COVID-19 were both internal and external ones of a moderate level, with a mean score of 3.19 on a 5-point Likert scale; the reported challenges to online learning included issues related to financial difficulties, internet connectivity, e-learning platform services, hardware and software availability, mental health, motivation, focus, time management skills, technological skills, technical orientation and guidance, technophobia, isolation, instructors' interaction, teaching strategy, learning material quality, assessment, and evaluation. Despite the challenges, the study presented evidence that

undergraduates of the SOES can adapt to online learning. The students liked online learning and they perceived it as being very useful.

These results should encourage instructional designers and instructors in online learning to enhance the quality of their learning materials and to assist students with the challenges they face. This may be done through using specific strategies to foster student interaction, motivation, and time management skills. These results additionally encourage decision makers at the University of Jordan to provide undergraduates with more technical guidance and orientation, to offer them counseling services for their mental health, to offer free internet packages to registered students, and to provide low-income students with the required software and devices for online learning. Furthermore, these results inspire the ISP to enhance internet coverage and services in Jordan.

The limitations of the study include that it was carried out at only one college/school in the university and has a very low number of male participants. The smaller number of male participants can be attributed to the low percentage of male undergraduate students who were enrolled at the SOES (6.38%). The results are based only on perspectives of undergraduates, and including instructors' perspectives in subsequent studies could help in terms of understanding the difficulties faced by instructors as well. Furthermore, future research should include a larger sample size and cover more colleges, and it should repeat this study in other universities in the context of Jordan.

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