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Real-world experiences of online learning: the effect of synchronous online learning on university students' classroom engagement

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While the effect of online learning on students' academic achievement has been extensively studied, the impact of synchronous online instruction on students' class engagement has not received enough attention in mainstream literature. This study addresses this gap and explores how the adoption of synchronous online learning has influenced Jordanian university students' class engagement during the COVID-19 pandemic. The study adopted a mixed-methods approach that included classroom observations, semi-structured interviews with 15 lecturers and 30 university students, and a questionnaire that 140 university students filled out. Thematic analysis was used to analyse the interview data, and SPSS was used to generate descriptive statistics to analyse the questionnaire data. The study provides evidence that online learning has a significant effect on bolstering students' classroom engagement: University students were found to have more active engagement in synchronous online classes than in face-to-face classes. For example, students were found to ask their tutors more questions, request more clarification, volunteer to explain some points to other students, and/or voice their concerns in online classes rather than in face-to-face classes. The study found several factors that encourage students to get actively engaged in online classes and recommends more application of online classes in university settings. This research adds to the literature by putting an emphasis on how online teaching can really be a great source of assistance in increasing student engagement and advocates for the inclusion of online teaching elements, keeping traditional teaching intact so that the learning environment is made to be interactive and engaging.

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Introduction

The outbreak of the COVID-19 pandemic in early 2020 urged Jordanian educational authorities to apply an array of obligatory measures across universities and colleges. Chief among them was the transformation from traditional, face-to-face classroom instruction into virtual/online classroom[1] settings to curb the spread of the virus among learners and citizens of the country (see Al-Khresheh, 2021 for more depth on these adaptations). During this time, on-premises classes resumed in the first semester of the academic year 2021–2022, following the directive to vaccinate all students, employees, and faculty from higher education governance. Due to the challenges of the peak pandemic, the formal embedding of digital learning modalities into academic curricula was exercised during the academic year 2020/2021. This is strategic in nature as it aims at preparing higher education institutions and their staff for effective emergency responses, improving the quality of teaching and learning, and ensuring improved educational service delivery (Almaiah et al., 2020; Alsoud & Harasis, 2021; Bataineh et al., 2021). These modes of education diversified the teaching load of lecturers, who were requested to teach online, face-to-face, and blended courses. That is essentially because certain courses of the study plan of one programme should be taught online, while others are to be taught using blended learning or through face-to-face classes. The regulations in higher education institutions require that up to 10% of all programmes be offered fully online, at least 60% through blended learning, and the remainder in a more traditional face-to-face mode of instruction. Each modality follows its respective guidelines, not least full-featured online courses—most of the lectures should be synchronous, which is a type of learning that occurs in real-time and where instructors and students intend to be present simultaneously, including through live online sessions. This is compared to asynchronous learning, which refers to course activities and assignments that the students work on by themselves at any time, and not in real-time interaction with the instructor or peers.

A first observation was that students were most highly engaged when in online settings compared to face-to-face classroom settings. This observation contrasts with general beliefs about engagement in online learning. For example, Alzahrani (2023) reports that students in online learning settings find it difficult to engage in class discussions. Cancino and Avila (2021) also report negative perceptions of EFL students towards engagement in online classes. This study examines this observation in greater detail, aiming to investigate whether this observation is, in fact, valid (i.e., manifested by other staff members and students) and, if yes, to identify the main factors that make online lectures a more convenient venue for students to positively become active rather than just passive listeners in the learning process. Indeed, the literature on online learning abounds with studies on the link between online teaching and student engagement. Luo et al. (2022) explored the effect of harmonious classroom settings on increasing student engagement in online classes and found that positive relationships among students and with their teachers lead to increased levels of engagement in online settings. In addition, Vezne et al. (2023) investigated how practitioners' attitudes towards online learning and the type of motivation (intrinsic and extrinsic) influence student engagement online. The results showed that attitudes towards online learning and intrinsic motivation positively influence engagement levels. Huang and Wang (2023) investigated the impact of student motivation and level of engagement on ultimate attainment in online learning settings during COVID-19. The study used a quantitative approach to analyse the responses of students, adopting the self-determination theory as a framework to analyse the data. The results showed that competence and engagement enhance motivation in online learning environments, which, in turn, positively affects the ultimate attainment.

This study has different objectives and methodologies. The study focuses on how the use of synchronous online learning boosts student engagement. It uses a mixed-methods approach, including classroom observations, interviews, and questionnaires. While the above studies by Luo et al. (2022), Vezne et al. (2023), and Huang and Wang (2023) focus on Chinese and Turkish contexts, exploring specific educational settings with certain educational environments and objectives, our study contributes to the literature by investigating the Jordanian educational system during COVID-19, providing insights into coping strategies in remote teaching. It provides new insights into the use of online education, offering practical tips that help boost the outcomes of second language education. Specifically, this examination is carried out through three steps: Firstly, the researchers interviewed staff members who deliver the two types of teaching (online classes and face-to-face classes). Secondly, the researchers interviewed the students involved in both types of classes. Thirdly, the researchers distributed a questionnaire that covers the main factors that are reported to them by both staff members and students (see Section 3 for more details on the methodology used). The objective of the study is to explore the phenomenon of student engagement in online learning compared to traditional face-to-face instruction at Jordanian institutions of higher education. To be more specific, this research aims to (dis)confirm our initial perceptions regarding heightened student engagement with the online learning environment and identify the key factors contributing to the heightened engagement of students in online settings. To achieve these aims, the study addresses the following research questions:

1. What is the impact of online learning on students' engagement in language classes in higher education institutions in Jordan?
2. How do online classes compare to face-to-face classes in terms of promoting student engagement?

These proposed questions are set to offer insights into pedagogical strategies that enhance student participation and consider the integration of online learning principles with traditional pedagogy methods to encourage a more engaging, inclusive educational environment. The following section discusses the application of online classes in Jordan more, putting the observation that the current paper aims to explore into perspective. As is shown in Section 4, the observation that students are more active in online classes than in face-to-face classes is valid, as validated by both the staff members and students. Additionally, a number of factors are found to be relevant and significant: the supervision of the student's family, easy accessibility to online resources, and the content of the online classes, in addition to a set of factors related to the students themselves and their teachers (see Section 4). Implications to the application of both online and traditional modes of teaching are highlighted (Section 5).

Literature review

A glimpse at the related literature on the use of online classes in Jordan during the outbreak of COVID-19 and the period that followed reveals the remarkable interest in this topic. In this section, the literature on online learning in Jordan is reviewed, focusing on two themes: the challenges associated with online learning and its role in students' academic achievement.

Challenges of using online learning. Much of the scholarly focus was based on the major obstacles and problems that students and

staff encounter while applying distance learning. According to the related literature, more noted obstacles include difficulty with accessibility, internet connection and speed, training, and infrastructure. Some of these studies provided a number of recommendations that should be considered in order to overcome these obstacles and problems. For instance, Alqudah et al. (2020) examined the e-learning experience of Jordanian academic ophthalmologists during the COVID-19 pandemic. The study used a cross-sectional survey, which was applied via a questionnaire distributed among 23 academic ophthalmologists who worked at 6 medical schools in Jordan during the lockdown. The questionnaire included questions about the ophthalmologists' experience with e-learning. It also included items that are intended to investigate the advantages and disadvantages of e-learning as well as the interactions of medical students for e-learning. The study found that the flexibility of e-learning to time and place was an important advantage (95.5%), whilst the lack of required skills was the major disadvantage for e-learning (77.3%). The study also found that most participants (86.4%) were not fully satisfied with e-learning as the sole teaching mode for undergraduate teaching. The study suggested integrating e-learning into the curriculum. In total, the study found that ophthalmologists' experience with e-learning was positive, as most of them proposed that e-learning would have an important role in the future of medical education in Jordan.

In a related study but with more focus on English language students of Jordan, Rababah (2020) explored the main obstacles and challenges encountered by English language students at a private university in Jordan while using e-learning programmes. Twelve students were selected for a focus-group interview. The selected students were asked to answer certain questions that were concerned with the main obstacles and challenges they faced during the use of e-learning platforms. This study found that there are three major obstacles that constrained the students' use of online platforms in their study, including "lack of effective training, lack of accessibility, and inconsistent teaching styles of instructors" (p. 28). Therefore, one can notice that the problems that the students face while using online platforms are, to some extent, unrelated to their study specialisation. Similar obstacles arise irrespective of the subject matter. This is plausible as these obstacles are related to factors which are beyond the type or content of the study; rather, they are related to a set of factors which are related to accessibility (or technology), training and infrastructure, teaching styles and student's awareness of the online classes (see Jaradat & Ajlouni, 2021; Mirani et al., 2021; Rayyan et al., 2024; among many others).

Likewise, Alsoud and Harasis (2021) investigated the student's e-learning experience in Jordanian universities with a particular focus on e-learning readiness during the pandemic. The study drew on a structural online questionnaire whose findings are descriptively analysed. The study found that students coming from rural and Bedouin (i.e., remote and disadvantaged) areas encountered more challenges than students from urban places who were established in big cities. This difference relating to the place of residence of the student is, in fact, plausible because remote areas of Jordan suffer from effective technological accessibility, poor internet connectivity, and harsh study environments. Alsoud and Harasis (2021) mentioned that in order to make distance learning successful in Jordan, more effort should be spent by the local authorities in order to "develop a resilient education system that supports electronic and distance learning throughout Jordan" (p. 1404).

Another yet relevant line of research pertaining to the use of distance learning and blended learning in Jordan during the outbreak of COVID-19 explores the readiness of higher education institutions and the priorities such institutions should give

attention to in order to make distance learning more effective. For instance, Abusalim et al. (2020) explored blended learning implementation in Jordanian universities whose low budgets hinder the ideal progression of online learning in normal and emergency times. This study essentially identified the major procedures that should be taken to make blended learning (as well as distance learning) successful. From the students' perspective, this study investigated whether attention should be paid to investing in IT infrastructure or training faculty members in the necessary student-centred methods and relevant pedagogies. To this end, a survey of 254 students at the University of Jordan was conducted. The study found that students consider faculty training more important than investing in IT infrastructure. The study recommended that low-budget institutions should pay more attention to instructors' training and the shift to student-centred styles of pedagogies. Therefore, costly technological investments should not be deemed necessary as a first step during the initial stages of blended learning in Jordan and other developing countries. The major finding of this work is predictable because the application of blended learning requires sufficient training of the staff (see Jnr & Noel, 2021; Sarfraz et al., 2022; see Mali & Lim, 2021 for the use of blending learning in COVID-19 and Ababneh, 2022 for the context of Jordan).

The role of online learning in academic achievement. Bataineh et al. (2021) aimed to explore the effectiveness of distance education in Jordanian universities during the COVID-19 pandemic. The study essentially attempted to identify the main problems and obstacles that university students encounter. To this end, a particularly built questionnaire was distributed to a sample of 1000 students, who were randomly selected from both public and private universities in Jordan. The major findings of the study showed that most Jordanian university students were concerned with the distance learning experience. The main obstacles reported included internet speed, technological difficulties, and online content design. The study concluded that the success of distance learning in Jordan is based on three major factors: technology, university, and students. In this regard, Bataineh et al. (2021, p. 146) mentioned that "[t]echnology should be available to ensure the success of distance learning like availability of devices, the Internet, Internet speed and Internet bundles … [and that] the university should provide the necessary technical and psychological support to their students." More importantly, Bataineh et al. (2021) stressed the need to raise students' awareness of the value of using online learning. Therefore, it can be proposed that Jordanian universities were not well-prepared to use distance learning during the outbreak of COVID-19. This lack of preparation was the main trigger for the proposal of the inclusion of courses that should be completely delivered by distance learning (see also AlKhresheh, 2021; AlQteishat et al., (2021); Ghazal et al., 2022).

Abusalim et al. (2024) explored the role of online learning in increasing students' motivation and self-efficacy by comparing the outcome differences in online and face-to-face classroom discussions for students of German as a foreign language. The study had 33 Jordanian university students who were divided into a control group, which took part in conventional classroom-based discussions, and an experimental group that used the online platform over the period of six weeks. The results showed that the experimental group students had greater motivation and self-efficacy improvements than their colleagues in the traditional classroom. On the post-test, students in the experimental group showed more improvement in self-efficacy and intrinsic motivation than students in the control group. This asserts that the online platform helps improve self-efficacy better than the

Table 1 Description of the research design.	
Stage	**Sub-Stages**
Research Design	Mixed-methods
Sampling Technique	Purposive Sampling
Data Collection	Interviews – Questionnaires
Procedures	Ethical Considerations – Interviewing – Questionnaire Monitoring
Data Analysis	Qualitative Analysis – Quantitative Analysis
Results Integration	Data Synthesis

traditional way of developing important educational traits. The study also revealed that the experimental group carried out in an online environment avails better benefits than that which is carried out face-to-face, possibly due to unique features presented by the online discussion forum that helps and also engages and maximizes the contribution of students. This study concludes that the opportunities that digital platforms present are invaluable to impact educational outcomes.

Previous research has provided recommendations that will help in enhancing the effectiveness of online learning, especially during the COVID-19 outbreak. First, most of the studies highlighted reliable internet access and adequate IT infrastructure as crucial to overcoming technological obstacles, particularly in rural and disadvantaged areas (Alsoud & Harasis, 2021). Most of them, such as Alqudah et al. (2020) and Rababah (2020), advise increasing the training for students and instructors in the use of e-learning platforms. There is also a strong recommendation for the integration of online learning into academic curricula—not as a replacement, but to supplement conventional approaches. According to Abusalim et al. (2020), this would increase flexibility and lead to more active student engagement. This means that it emphasizes such an important aspect as faculty training. That is why studies show that investment in pedagogical training at early stages of blended learning is more essential than infrastructure. For instance, Abusalim et al. (2020) highlights this. Finally, the development of approaches to increase student motivation through the use of interactive tools and parental involvement may be considered methods to increase engagement and participation rates within online environments (Bataineh et al., 2021; Almaiah et al., 2020). Bottom of Form Against this background, it can be proposed that most modern scholarship on the use of online classes has investigated the aspects that are related to the application of this mode in Jordanian universities. However, less attention is paid to the student's engagement in online classes and whether there are differences between face-to-face classes and online classes in bolstering the students' engagement. This research aims to bridge this gap, providing evidence that online classes are found to be more attractive to students to take part in because of a set of factors whose effect should be explored in greater detail.

Methodology

This section outlines the research design, including the procedures of data collection and data analysis. It describes the sampling technique used to select the participants, which aimed to target participants whose experiences are expected to enrich the results of the study. The section also presents the data collection tools and describes how each tool was used to elicit the required data. In addition, the section showcases the procedures of data analysis including both qualitative and quantitative measures. It explains the systematic approach used to explore the research questions and provide rigour in the execution of valid and reliable results. Table 1 below describes the research design. In this study, a purposive sampling strategy was adopted to select participants

who had experience both in online and face-to-face learning environments during the COVID-19 pandemic, and whose insights would be material in addressing the study's objectives. This is because the 15 lecturers and the 30 students chosen for interviewing were diverse in their academic backgrounds and teaching experience. In contrast, 140 students who completed the questionnaire at different levels of academic years and disciplines were sampled to ensure the broadest possible range of perspectives. The participants chosen for each method were justified both qualitatively in-depth and quantitatively robust. Semi-structured interviews lasted 30–45 minutes, thus allowing for open-ended discussions. The questionnaires were distributed online through university email systems and learning management platforms, which ensured broad reach and convenience for students. The questionnaires used closed-ended and open-ended questions designed to capture quantitative and qualitative data. Data analysis was done using thematic analysis of qualitative data from the interviews. This involved coding into themes about student engagement that were systematically checked against other data for consistency of information. The quantitative data were analysed using SPSS, with descriptive statistics and reliability analysis that included the Cronbach's alpha for testing the internal validity of the items on the questionnaire. These steps ensured full and valid qualitative and quantitative data analyses. The fact that these details are added makes the current study a more transparent and rigorous account of the methodology within the study for clearer explanations of sampling, data collection, and analysis.

To better illustrate the research design of the current study, we created the diagram below, which explains how the design was implemented (see Fig. 1).

Sampling technique. The sampling technique in this study was purposive, as it was aimed to ensure that the sampling process targeted a specific group of participants. The participants were invited to complete a questionnaire and for semi-structured interviews. Fifteen staff members and 30 students participated in the interviews, while 140 university students completed a questionnaire. This approach was taken in an attempt to capture diverse and relevant experiences and perspectives regarding the influence of online learning in engaging students in their learning. The participants are thus likely to have been selected purposefully to include those with experience in both learning modalities during the COVID-19 pandemic period, that is, online and face-to-face.

Data collection tools. The study adopted a mixed-methods research design to investigate the complexity of student engagement in an online environment. This approach included several data collection tools:

1. Semi-structured Interviews: Interviews were carried out with lecturers (15) and students (30) to draw out personal experiences, perceptions, and specific examples that illuminate the differences in student engagement across online and traditional learning environments.
2. Questionnaires: A questionnaire was distributed to a broader group of 140 university students, aiming to collect precise quantitative data on the factors that influence student engagement in online classes. This tool encompassed both closed-ended and open-ended questions to accommodate a wide array of responses.

Procedures of data collection. The researchers confirm herein that informed consent was obtained from all of the participants (both who participated in the interviews and who filled in the
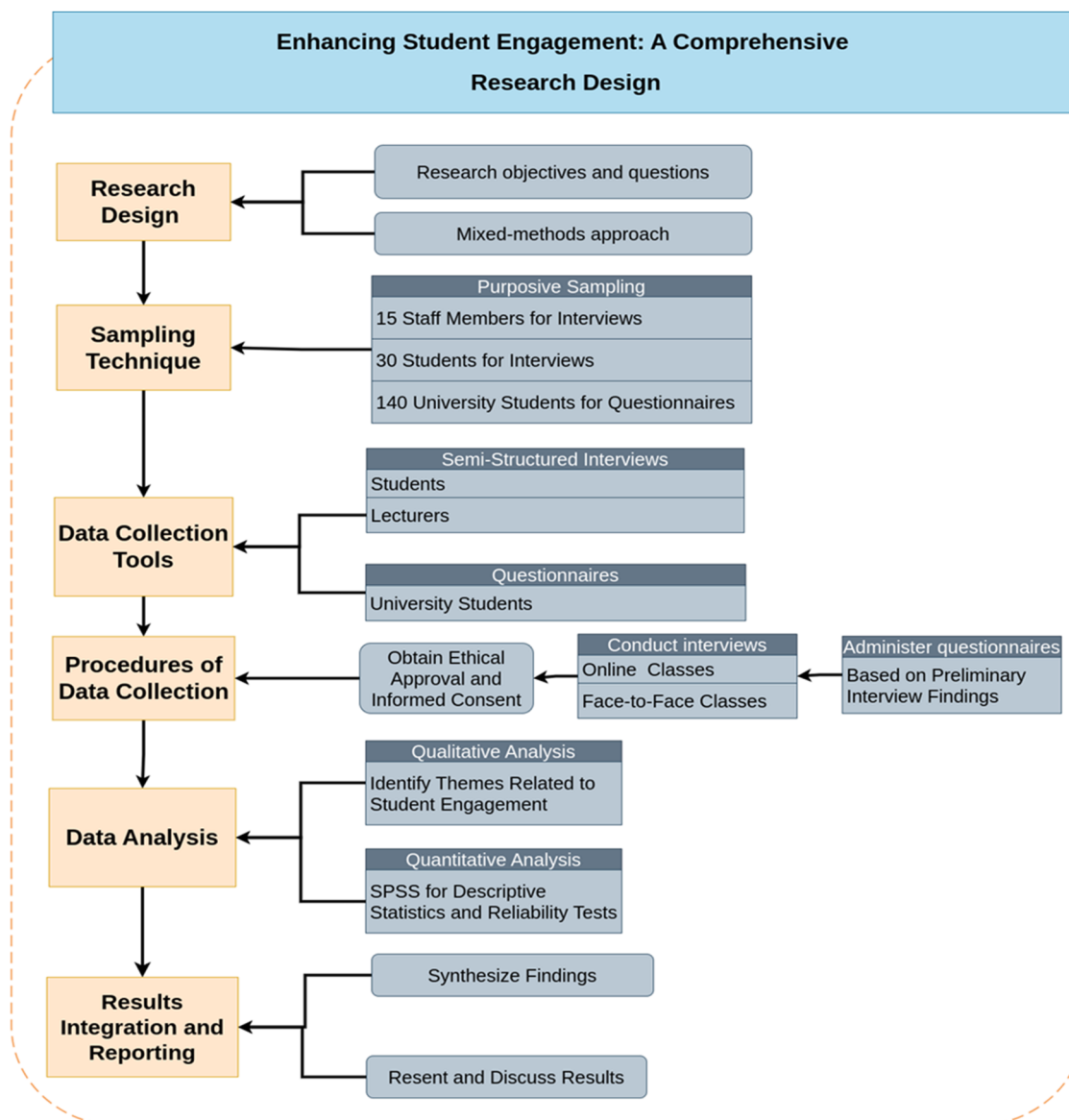
Fig. 1 Research design.

questionnaire). As is mentioned above, the assumption that students are more active (in terms of engagement) in online classes is based on the researchers' own observations. In order to make sure whether this observation is valid, the researchers first conducted semi-structured interviews with 15 staff members who all work at the University of Jordan. DeJonckheere and Vaughn (2019) proposed that semi-structured interviews can make a large space available for the researchers to poll the interviewees while keeping the basic interview structure. Although the interview is planned between researchers and respondents, semi-structured interviews are of great flexibility for researchers in managing the interview, considering that this type of interview does not require multiple rounds with interviewees. The interviewees teach in three departments of the School of Foreign Languages: the Department of English Language and Literature, the Department of French Language and Literature and the Department of European Languages. All of these staff members have experience teaching online and in face-to-face classes. Twelve of them have at least one online course and one face-to-face course in the same semester. Afterwards, the researchers conducted semi-structured interviews with

30 students who were randomly selected. All of these students are at their third- or fourth-year level, so they obtain the required experience in comparing the students' engagement in both online and face-to-face classes. The results of the interviews generated five aspects (themes) that are pertinent to the research questions. In order to examine these aspects more closely and validate the results obtained from the interviews with the lecturers and students, a specifically built questionnaire which draws on the results of the interviews was administered to 200 third- and fourth-year undergraduate students who majored either in one language (the English Language) or two languages (dual languages major). Each aspect is represented by 8 items. The participants were mainly from the two sexes (males and females). The questionnaire included a number of control sentences to weed out participants who were inconsistent in their responses. In addition, it included a number of fillers that are used to avoid naïve answers and to guide students' answers away from normative rules. A five-point Likert scale was used to elicit their decisions (perfectly acceptable—completely unacceptable). In total, 60 participants were excluded because their responses were either incomplete or inconsistent. Additionally, the

Table 2 Reliability analysis results.

	No. of items	Cronbach's Alpha
Parental Supervision	7	0.952
Online knowledge resources	8	0.953
Student Privacy	8	0.942
Lecturers' performance and controlled behaviour	8	0.955
Online Lectures are equipped with more engaging material	8	0.908

questionnaire has an open question that asks for any other reason for the active engagement of the students in the online classes.

Data analysis procedure. Data analysis was conducted using both qualitative and quantitative methods to comprehensively address the study's objectives and research questions. The interviews were analysed to identify themes related to the impact of online learning on student engagement. Participants' responses provided insights into how online classes influence engagement levels and the factors contributing to active participation. Descriptive statistics and reliability analysis were used to analyse the questionnaire data. This approach helped quantify the extent of student engagement in online learning, the impact of parental supervision, access to online resources, student privacy concerns, lecturers' performance, and the use of engaging materials in online lectures. Data collected through the close-ended questionnaire were entered into Excel and later exported to SPSS version 28 for data analysis. Descriptive statistics, mainly measures of frequency and reliability analysis, were used to analyse the data. Cronbach's Alpha, a reliability procedure, was used to examine whether the internal consistency of the items measuring each of the five constructs is adequate. On the other hand, descriptive statistics offered insight into the data collected while addressing the study hypotheses. The results were presented neatly in well-labelled tables and discussed in the results section below.

Reliability and validity. The study ensured the reliability and validity of its findings using Cronbach's Alpha, a statistical technique used to assess the questionnaire's internal consistency. This ensured that the items reliably measured the themes of interest. All study variables achieved a Cronbach's alpha greater than 0.7, indicating high reliability. After identifying an item that lowered reliability, it was removed, increasing the reliability to 0.952. This demonstrated the study's careful attention to the quality and integrity of its data collection instruments.

Results
Findings of the interviews. Following is a presentation of the findings of the interviews that aimed to explore the effects of online learning on foreign language students at Jordanian universities. As mentioned above, the researchers conducted interviews with 15 lecturers and 30 students to elicit their perspectives on the effect of online classes on student engagement in learning foreign languages. The main questions of the lecturer interviews include the following:

i. According to your direct experience, to what extent does distance learning affect students' engagement?

ii. To what extent do you think students are more active or passive in terms of engagement in online classes than in face-to-face classes?

iii. Please mention some incidents where students were more active in online classes.

iv. What are the main factors that contribute to the student's active engagement in online classes?

According to the results that were obtained from all of the staff members, students are reported to be more active in online classes than in face-to-face classes. One staff member said: "Although many people out there talk about returning to face-to-face classes, I think students are more engaged in online lectures". Another staff member mentioned: "I barely complete my course plan if I allow every student who wants engagement to go ahead." All in all, the staff members mention the following factors that are responsible for boosting students' engagement in online classes:

i. The students' increasing motivation to appear more active in front of his/her family.

ii. The students' parent supervision.

iii. The competition between students.

iv. Less pressure on the students (as they are more comfortable at home).

As for the student interviews, the main questions of the interviews include the following:

i. According to your own observation, which do you find more convenient for students to get positively engaged in online classes or face-to-face classes?

ii. Do you think that there are some students who prefer to participate in online classes rather than face-to-face classes or vice versa?

iii. Please mention some incidents where students were more active in online classes.

iv. What are the main factors that contribute to the student's active engagement in online classes?

According to the results that were obtained from all of the students, it turns out that students find online classes more convenient to engage in than face-to-face classes. One student mentioned: "For me, it is easier to participate in the online lecture because I can ask my question with no care to other students around me." Another student mentioned: "I like online classes; because they enable me to ask my question better by writing them down before reading them from my notebook." Another student mentioned: "When I ask the professor to repeat a certain point, I am sure he/she repeats without making me feel abused." All in all, the students mention the following factors that are responsible for boosting their engagement in online classes:

i. The lecturer's (unexpected) behaviour is controlled (especially when the lecture is recorded).

ii. The student is more comfortable because there is no attention paid to other students' reactions.

iii. Accessibility of Internet resources.

Furthermore, there are five important aspects relating to student engagement in online classes, as underscored by the lecturers and students:

- The effect of parental supervision and surveillance on the student's active engagement in online classes.
- Access to online knowledge resources.
- Student privacy issues.
- Lecturers' performance and controlled behaviour.
- Online Lectures are equipped with more engaging material.

Table 3 Summary Statistics of Parental Supervision Items.

	SD	D	N	A	SA
The presence of the family has a great impact on my motivation to participate	-	3(2.4)	12(9.6)	36(28.8)	74(59.2)
I like to participate because the lectures are often conducted in front of the family	-	3(2.4)	10(8)	63(50.4)	49(39.2)
Sometimes, I participate a lot to let my family know that I participate much	-	3(2.4)	37(29.6)	37(29.6)	48(38.4)
My family is pleased when I participate.	-	5(4)	6(4.8)	40(32)	74(59.2)
My family gets motivated by the lecture; therefore, I participate.	-	4(3.2)	9(7.2)	38(30.4)	74(59.2)
Participating in the lecture gave me positive energy.	-	5(4)	5(4)	71(56.8)	44(35.2)
I get benefits from my family when I participate.	-	4(3.2)	8(6.4)	66(52.8)	47(37.6)
My parents force me to participate.	-	4(3.2)	6(4.8)	70(56)	45(36)

Table 4 Summary Statistics of Online Knowledge Resources.

	SD	D	N	A	SA
I participate because I get the answer from the internet.	-	4(3.2)	8(6.4)	43(34.4)	70(56)
The internet has a great impact on the answer because the information is available.	-	3(2.4)	34(27.2)	41(32.8)	47(37.6)
I prepare many pages from the internet in order to participate.	-	3(2.4)	9(7.2)	41(32.8)	72(57.6)
The internet gives an immediate answer; therefore, I participate.	-	3(2.4)	9(7.2)	39(31.2)	74(59.2)
The internet gives more than one answer; therefore, I discuss.	-	3(2.4)	10(8)	67(53.6)	45(36)
I can explore the book quickly and know the answer.	-	3(2.4)	11(8.8)	64(51.2)	47(37.6)
I participate because there is a difference between the internet and the professor's point of view.	-	3(2.4)	11(8.8)	65(52)	46(36.8)
The answer that the internet gives is always correct.	-	3(2.4)	11(8.8)	41(32.8)	70(56)

Table 5 Frequency and percentage (in brackets) of student privacy items.

	SD	D	N	A	SA
In the virtual lecture, I am not afraid of committing a mistake.	-	3(2.4)	11(8.8)	65(52)	46(36.8)
I am not afraid of being embarrassed.	-	3(2.4)	9(7.2)	41(32.8)	72(57.6)
I like to participate because I have the freedom to reply back.	-	3(2.4)	13(10.4)	39(31.2)	70(56)
I don't feel embarrassed in front of my colleagues when I participate.	-	3(2.4)	10(8)	38(30.4)	74(59.2)
At home, participation is more effective because I feel much comfort.	-	3(2.4)	13(10.4)	67(53.6)	42(33.6)
I can go and do whatever I want without asking for permission.	-	3(2.4)	9(7.2)	41(32.8)	72(57.6)
I feel that I must participate because I stay at home.	1(0.8)	3(2.4)	39(31.2)	38(30.4)	44(35.2)
At home, I feel better because I wear whatever I want; therefore, I am not afraid of participating.	1(0.8)	3(2.4)	10(8)	43(34.4)	68(54.4)

All in all, the results of the interviews above indicate that both the lecturers and the students were in agreement during the interviews, agreeing that the students are much more involved in classes conducted online. Lecturers have observed cases of enhanced participation when students ask questions and explain some points to colleagues. This makes the online learning environment also best for the students in terms of engagement since it is less pressured, more comfortable at home, and has ready access to Web-based resources. These results confirm the hypothesis that online learning has an effect on students' academic performance.

Findings of the questionnaire

Reliability analysis. As aforementioned, reliability analysis is a statistical technique used to examine whether the items measuring a given construct meet the statistical threshold of 0.7. Cronbach's Alpha was used to examine internal reliability among the items for each study dimension. As can be observed in Table 2 below, Cronbach's alpha of all the constructs/study variables was greater than 0.7. Initially, the reliability of parental supervision was 0.651. However, further investigation showed that the removal of the third item increased the reliability to 0.952. The reliability of all variables met the threshold of 0.7 and was considered appropriate for further analysis.

Descriptive statistics and analysis of hypotheses
Parental supervision: The majority of the respondents strongly agreed that the presence of the family had a great impact on their motivation to participate (59.2%). A good number of respondents agreed that they like to participate because the lectures are often conducted in front of the family (50.4%). 3 (2.4%) respondents disagreed, 37 (29.6%) were neutral, 37 (29.6%) agreed, and 48 (38.4%) strongly agreed that sometimes they participate a lot to let their family feel that they are active. Results strongly suggested that pleasing students' families is the main reason for their participation (59.2%). More than half of the respondents strongly agreed that their families were motivated by the lecture; thus, they participated (59.2%). 71 (56.8%), the highest number of participants, agreed that participating in the online lecture gives them positive energy. While most of the respondents (52.8%) agreed that they get benefits from their families when they participate, (56%) of participants showed that their parents force them to participate (See Table 3 below).

Online knowledge resources: Summary statistics in Table 4 below suggest that the majority of the participants strongly agree that they participate because they get answers from the internet (56%). 3 (2.4%) study participants disagreed, 34 (27.2%) were neutral, 41 (32.8%) agreed, and 47 (37.6%) strongly agreed that the internet has a great impact on their answers because of the availability of the information. Most of the study respondents strongly agreed

Table 6 Frequency and percentage (in brackets) of lecturers' performance and controlled behaviour items.

	SD	D	N	A	SA
The professors embarrass me; therefore, I participate.	1 (0.8)	3 (2.4)	14 (11.2)	40 (32)	67 (53.6)
The professor's response is always kind in virtual lectures.	1 (0.8)	3 (2.4)	35 (28)	38 (30.4)	48 (38.4)
The professor will not comment on any form of participation, even if it is not pertinent.	1 (0.8)	3 (2.4)	13 (10.4)	39 (31.2)	69 (55.2)
The professor will not comment on any form of participation, even if it sounds silly.	1 (0.8)	3 (2.4)	11 (8.8)	44 (35.2)	66 (52.8)
I participate because the professor explains enough.	1 (0.8)	3 (2.4)	10 (8)	65 (52)	46 (36.8)
I participate because the professor explains the material course adequately.	1 (0.8)	3 (2.4)	9 (7.2)	43 (34.4)	69 (55.2)
The professor allows more participation in the virtual lecture.	1 (0.8)	4 (3.2)	10 (8)	41(32.8)	69 (55.2)
The professor pays more attention to the answers than the students in virtual lectures.	1 (0.8)	6 (4.8)	10 (8)	38 (30.4)	70 (56)

Table 7 Frequency and percentage (in brackets) of items measuring online lectures are equipped with more engaging material.

	SD	D	N	A	SA
I participate a lot in virtual lectures because it is recorded.	1(0.8)	8(6.4)	31(24.8)	40(32)	45(36)
The virtual lecture is more appealing because the professor uses more media; therefore, I participate.	3(2.4)	8(6.4)	7(5.6)	42(33.6)	65(52)
The professor uses YouTube a lot in virtual lectures; therefore, I participate.	3(2.4)	7(5.6)	33(26.4)	34(27.2)	48(38.4)
The professor uses PowerPoint a lot in virtual lectures; therefore, I participate.	3(2.4)	8(6.4)	29(23.2)	38(30.4)	47(37.6)
The professor uses more examples in the virtual lecture; therefore, I participate.	2(1.6)	7(5.6)	34(27.2)	35(28)	47(37.6)
The professor uses more exercises in the virtual lecture; therefore, I participate.	2(1.6)	7(5.6)	30(24)	44(35.2)	42(33.6)
The professor's way of teaching is better in the virtual lecture; therefore, I participate.	2(1.6)	30(24)	9(7.2)	40(32)	44(35.2)
The virtual lecture is more appealing than the usual lecture; therefore, I participate.	2(1.6)	7(5.6)	5(4)	42(33.6)	69(55.2)

that they prepare many pages from the internet in order to participate (57.6%), and the internet gives them an immediate answer; therefore, they participate (59.2%). A good number of the study respondents agreed that because the internet gives more than one answer, they show more engagement (53.6%). However, the majority of the respondents also agreed that they could explore the book quickly and know the answer (51.2%). Slightly more than half of respondents agreed that they participate because there is a difference between the Internet and the professor's point of view (52%), while plenty of respondents strongly agreed that the answer that the Internet provides is correct (56%).

Student privacy: In terms of student privacy, the lion's share of the study participants agreed that in the virtual lecture, they are not afraid of committing a mistake (52%), while they strongly agreed that they are not afraid of being embarrassed (57.6%). An appreciable number of respondents strongly agreed that they like to participate because they have the freedom to reply (56%), and they do not feel embarrassed in front of their colleagues (59.2%). A significant number of respondents agreed that participation at home is more effective because they feel much comfort (53.6%). 3(2.4%) respondents disagreed, 9 (7.2%) neither agreed nor disagreed, 41 (32.8%) agreed, and 72 (57.6%) strongly agreed that they can go and do whatever they want without asking for permission. Similarly, 1(0.8%) respondent strongly agreed, 3(2.4%) respondents disagreed, 39 (31.2%) neither agreed nor disagreed, 38 (30.4%) agreed, and 44 (35.2%) strongly agreed that they feel that they must participate because they stay at home. Lastly, the results indicated that the majority of the respondents strongly agreed that at home, they feel better because they wear whatever they want; therefore, they are not afraid of participating (54.4%). Table 5 below shows the frequency and percentage of each item in this section.

Lecturers' performance and controlled behaviour items: The results in Table 6 below show that 1 (0.8%) strongly disagreed, 3 (2.4%) disagreed, 14 (11.2%) neither agreed nor disagreed, 40 (32%) agreed, and 67 (53.6%) participants strongly agreed that

the professors embarrass them; therefore, they participate. The majority of the respondents strongly agreed that the professor's response is always kind in virtual lectures (38.4%) and that the professor will not comment on any form of participation even if it is not pertinent (55.2%) or sounds silly (52.8%). A significant number of participants agreed that they participated because the professor explained enough (52%) while the majority strongly agreed that they participated because the professor explained the material course adequately (55. 2%). The reason for participation in a virtual lecture for a large percentage is because the professor allows it (55.2%). More than half of the respondents strongly agreed that the professor pays more attention to the answers than the students in virtual lectures (56%).

Online lectures are equipped with more engaging material: A sizeable majority strongly agreed that they participate a lot in virtual lectures because it is recorded (36%). A large percentage of respondents strongly agreed that they participate in virtual lectures because the professor uses more media (52%), a lot of YouTube (38.4%), plenty of PowerPoint (37.6%), and more examples (37.6%). 2 (1.6%) strongly disagreed, 7 (5.6%) disagreed, 30 (24%) neither agreed nor disagreed, 44 (35.2%) agreed and 42 (33.6%) participants strongly agreed that they participate in the virtual lectures because the professor uses more exercises. A considerable number of respondents strongly agreed that the professor's way of teaching is better in the virtual lecture; therefore, they participated (35.2%). A good number of the respondents strongly agreed to participate because the virtual lecture is more appealing than the usual lecture (55.2%). Table 7 shows the frequency and percentage of each item about this theme.

The findings from the questionnaire support the findings from the interviews with more details about the extent of student engagement and the specific factors that led to this engagement. The salient factors are indicated by the impact of parental supervision, access to online resources, and the behaviour of lecturers in an online setting. Many students reported factors like the presence of family and expectations from them encouraging participation in a better way. Another factor in such participation

is stimulation, which would be online accessibility to resources, which students should reach when it comes to accessing or sharing information more easily. Further, the controlled environment of online classes and the predictability, possibly of a lesser intimidating nature, of the lecturers' behaviour were quoted as factors encouraging student participation.

Discussion

This study aimed to investigate the impact of online learning on student engagement and the differences between online classes and face-to-face classes in terms of student engagement. The study showed evidence—obtained from the results of interviews with lecturers and students and surveys of students—that online teaching has the potential to develop student engagement. The results presented above indicate that online learning has a significant effect on bolstering students' classroom engagement. In particular, the results revealed that foreign language students were found to be more engaged in class discussions than in face-to-face classes. This engagement manifests itself in student behaviours and learning practices in online meetings. The students were found to ask their lecturers more questions. This could be related to feelings of apprehension that students normally have in face-to-face classes, particularly in foreign language classes where most students lack the essential communicative competency to participate in class discussions. They would prefer not to speak in class for fear of committing mistakes and being criticised in front of their peers. They, therefore, find online classes to be a motivating avenue for them to ask questions and participate in class discussions. This avenue leads the students to develop academic self-efficacy—defined as "the perceived confidence in one's ability to execute actions for attaining academic goals" (Schunk & Mullen, 2012, p. 222)—and ultimately achieve better results.

The results also showed that university students had more clarification requests in online classes than in face-to-face classes. This is observed by many of the interviewed lecturers, who found that students in online meetings are engaged in the topic and ask for clarifications in cases of ambiguity. They also were found to volunteer to explain some points to other students, a practice that they usually avoid in face-to-face classes because of sensitivity and face-saving concerns in case of unhelpful contributions. More importantly, the students in online classes are found to voice their concerns and discuss them more openly with their lecturers, creating an interactive environment that is reported to increase student motivation, student engagement, and student achievements. The results also indicate that there are a number of factors that encourage students to be more involved in class discussions. One of the most cited factors that led the students to actively engage in online classes is the issue of parental supervision. Many students thought that the supervision of their parents helped them achieve more motivation and engagement in class discussions. Bempechat and Shernoff (2012) argue that parents are the main guide for students through their online and face-to-face experiences. Their role becomes more important in online learning where teachers are not present with students to engage them in the learning process. Bempechat and Shernoff (2012) write:

Parents … can serve to greatly buffer or compound risk factors for disengagement and low achievement. Thus, it is critically important to shed light on how parents, in collaboration with their children, their children's teachers, schools, and communities, can work to stem the tide of underachievement and disengagement (p. 316).

The study, therefore, shows that our observations are valid: Online lectures are a more convenient venue for students to positively become active rather than just passive listeners in the learning process. In other words, online classes are found to be more attractive to the students in getting engaged (through participation, asking for more clarification, asking for more exercises, etc.). Online classes are becoming more like discussion platforms between the students and their teachers and between the students themselves. Students participate more in online lectures; they ask more questions about the topic being discussed; they ask their teachers to repeat a certain point and even voice their concerns that their teachers did not explain the point under discussion well or in a clear way that helps the students to understand the topic. Some of the students even attempted to provide examples without being asked for them, while others attempted to interfere when their teachers took more time to answer some of the students' questions (e.g., by helping the teacher explain the topic). Another relevant practice is that some students volunteer to lead lectures and prepare relevant material to share with other students and lecturers. These acts are barely evident in face-to-face lectures, which are, to a large extent, lecturer-centred (i.e., "delivering lessons through lectures and one-way delivery only" (Mahmud et al., 2014, p. 47)).

The current study primarily focuses on the effect of synchronous online instruction on Jordanian university students' class engagement during the COVID-19 pandemic. This study provides novel results to the literature by investigating the influence of synchronous online learning on student engagement, an underexplored area compared to the general area of online learning. The approach adopted in this study differs from previous studies primarily because of its focus on synchronous online instruction environments rather than asynchronous methods, which have been more commonly investigated in mainstream literature. For instance, studies by Almaiah et al. (2020) and Alsoud and Harasis (2021) primarily focused on the challenges and logistic needs of online learning without mentioning the role of synchronous online learning on student engagement. In addition, the results of this study partially agree with those of Luo et al. (2022) and Vezne et al. (2023), who noted that harmonious classroom environments and intrinsic motivation are significant predictors of enhanced student engagement in online settings. However, our study diverges from the previous studies in introducing novel insights into how specific aspects of synchronous online instruction can boost engagement compared to traditional face-to-face instruction. Moreover, the present study contributes to the literature by adding new findings regarding the factors that enhance active engagement and participation on the part of students. It highlights the role of parental supervision, access to online resources, and reduced peer pressure in increasing the engagement of students in synchronous online learning classes. These factors have been mentioned marginally in previous research. The major contribution of the study is that it provided empirical support and evidence to real-world experiences and observations about the effect of synchronous teaching on student interpersonal achievement. Such findings contrast with generalised findings of previous studies, such as those by Cancino and Avila (2021) and Alzahrani (2023), which emphasise the challenges and drawbacks of adopting online learning as a mode of instruction. Additionally, the methodology design adopted in the current study, which combines both interviews with students and teachers along with questionnaires, presents more valid results and a comprehensive description of the phenomenon of synchronous online instruction and student engagement. The method of triangulation used allowed for a more generalisable view of the study at hand. approach allows for a more nuanced understanding of engagement dynamics in online learning, going beyond the quantitative approaches typically seen in the literature.

Conclusion

The study explored the effect of online learning on student engagement at Jordanian universities during the COVID-19 pandemic using a combination of classroom observations, interviews with 15 lecturers and 30 students, and a questionnaire that was distributed to 140 students. The research found that online learning markedly increased student participation compared to traditional in-person classes. Students were more likely to ask questions, seek clarifications, and volunteer for explanations and discussions in online settings. This increased engagement was influenced by factors like the convenience of online classes, parental oversight, competition among peers, and a comfortable home setting. The interviews and questionnaires supported the hypothesis that online learning enhances student engagement. This is attributed to parental supervision, the availability of online resources, and lecturers' controlled behaviour in virtual environments. This points to the potential of online learning to motivate students and boost academic self-efficacy, especially in foreign language classes, where students may be less hesitant to participate. The descriptive statistics show that family involvement, the internet, and professors' behaviour in virtual classes play a significant role in influencing the participation of students in virtual classes. Regarding family involvement/parental supervision, the results show that the presence of family instils fear, which causes the students to participate. Students prefer virtual classes over face-to-face classes because of the laxity of staying at home. Unlike face-to-face classes, professors are more thorough in virtual classes, making students want to participate. Additionally, the teacher's good and expected behaviour to students' remarks encourages students' participation. Unlike face-to-face classes, the virtual lectures at the University of Jordan are more involving and interactive, encouraging students to participate. Lastly, easy access to internet resources is also paramount to the participation of Jordanian university students. In view of this, this study recommends more application of online classes by allocating more space to online classes in the academic course programme plans. This study also recommends a set of steps that help make face-to-face lectures more convenient for the students (recording the lectures, giving more freedom to the students to express their opinions, and controlling the lecturers' behaviour in the lectures). The study offers strong evidence that online learning boosts student engagement at Jordanian universities and suggests integrating online teaching with traditional methods to foster an interactive and engaging learning atmosphere. This research contributes significantly to the literature on online education, advocating for its ongoing application and development in higher educational settings.

Future research would include ascertaining long-term impacts of synchronous online learning on student engagement from a diverse range of educational contexts across many disciplines. Whereas this current study takes a close look at how Jordanian universities have maintained their day-to-day operations through the COVID-19 pandemic, similar inquiries could explore whether such increased engagement stands when these institutions begin to use hybrid or full in-person models. It would also be worth researching how synchronous and asynchronous components can best be combined in the pursuit of more flexible yet engaging learning environments. Another one could be the role of emerging technologies, such as virtual reality or AI-powered learning spaces, in the enhancement of student engagement. Future studies may also investigate how student demographics—socio-economic background or learning styles, for instance—affect online learning engagement. It will also contribute to helping educators understand how to optimally use online learning for better outcomes in participation and learning among students through the expansion of research in these dimensions.

Note

1 In this research, the study uses electronic learning (e-learning) to refer to distance or remote learning as a form of education conducted using information and communication technology tools. Online classes (or e-learning) refer to courses that are fully delivered online through virtual learning platforms, such as Microsoft Teams and Zoom.

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Author contributions

Marwan Jarrah conceptualized the research design, developed the theoretical framework, and contributed to data analysis, Sharif Alghazo collected and curated the data, performed the statistical analysis, and participated in the interpretation of results, Mutasim Al-Deaibes supervised the project and reviewed and edited the manuscript, and Hussein A. Alhawamdeh conducted the literature review, assisted in the development of the methodology, and contributed to manuscript writing. All authors have read and approved the final version of the manuscript.

Competing interests

The authors declare no competing interests.

Ethical approval

This study did not involve medical research or experiments on humans. Data were collected through an online questionnaire, with all information kept strictly confidential, anonymous, and used solely for research purposes. Although the researcher's institution does not require a formal review by an ethics committee for this type of research, the methodology and ethical considerations were thoroughly reviewed by the researcher and the Quality Assurance Committee of the School of Foreign Languages to ensure compliance with ethical standards and approved on June 20, 2023 under the approval number E-001. We collected the data during the first semester of the 2023–2024 academic year (October 2023 – January 2024). The study adhered to the principles of the Declaration of Helsinki.

Informed consent

Informed consent was obtained from all participants. The participation was wholly voluntary, without any risks, and did not involve any form of compensation. Participants were informed about the overall objectives and aim of the study, the validation procedures of the study requirements, the confidentiality of information, voluntary participation, and the ability to opt out of the study if needed.

Additional information

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