Learning and Teaching in Higher Education: Gulf Perspectives

Long-term impacts of COVID-19 on students' perceptions of English virtual classrooms: a contemporary analysis

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Abstract

Purpose – In a world full of emergencies, virtual learning offers a flexible and resilient solution to ensure the continuity of education. Grounded in self-determination theory (SDT), this study addresses the crucial need to explore the long-term impacts of COVID-19 on the educational system. It specifically explores the long-term impacts of COVID-19 on students' perceptions of English virtual classrooms (EVCs) perceptions of English as a foreign language (EFL) undergraduate to graduate students. Key areas of exploration include the types of classroom activities offered, the frequency of these activities, the level of interaction with instructors and the potential influence of gender differences on perceived benefits of EVCs.

Design/methodology/approach – To answer the queries, the study surveyed 342 Emirati EFL students through an online questionnaire.

Findings – The results showed that all types of activities scored highly for usage ($M = 3.32$) in EVCs. Students engaged in virtual learning sessions three to four times per week and rated their collaboration with the instructor highly ($M = 4.00$, $SD = 0.816$). They particularly valued clear expectations, constructive feedback and relevant examples, which indicate strong support for competence and relatedness. Although female students reported slightly higher mean scores than male students, the difference was not statistically significant ($P = 0.06$), suggesting that the benefits of virtual classrooms (VCs) are shared across genders.

Originality/value – These findings highlight the importance of course designers and instructors adopting strategies that intentionally support autonomy, competence and relatedness to sustain student engagement in VC activities.

Keywords Classroom activities, English virtual classrooms, Gender comparison, Students' perceptions, Self-determination theory, Virtual education

Paper type Research article

Introduction

Although virtual education predated the COVID-19 pandemic, it has provided a solution serving as a substitute for physical classrooms through the implementation of emergency

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remote education (Hazaea, Bin-Hady, & Toujani, 2021). Like any learning system, it has its supporters and critics, along with its own set of advantages and disadvantages. Researchers like Izumi, Sukhwani, Surjan, and Shaw (2020) believe that virtual education is not easily applied in all subjects. On the other hand, Mulyadi and Purnama (2019) affirmed that English courses are taught with little difficulty and English as a foreign language (EFL) learners expressed a positive inclination toward studying through the online classroom.

COVID-19 had long-term effects on the education systems, so it did not end when the pandemic ended. For example, some information shows that hybrid and online classes are increasing in many universities globally, for example, the UAE (Abdellatif *et al.*, 2023), Kuwait (Alkhaldi, Malik, Alhaimer, Alshaheen, & Lytras, 2024), Saudi Arabia (Alshammari & Alshammari, 2024; Oraif & Elyas, 2021) and in Latin America (Chicaiza, Ramos, Camacho, Heredia, & Chicaiza, 2024). This transition is worth investigating at various levels, like the adopted teaching strategies (Alkhnbashi, Mohammad, & Bamasoud, 2024; Bala, 2024), the effect of the pandemic in accelerating innovative strategies to hybrid models and simulation learning, the benefits of utilizing such learning mode (Chicaiza *et al.*, 2024), the integration of literacy skills (Bilotserkovets *et al.*, 2021), among many other concerns. Gurukkal (2020) enquired whether COVID-19 could change the mode of higher education. This enquiry urges us to investigate the long-term effect of virtual learning on EFL students' perception of the type of activities they integrate in, their satisfaction with their instructors and how male and female students react to this learning mode.

Various studies have reported the advantages of English virtual classrooms (EVCs) to students (Abidin, Kholidi, Puteri, & Irfan, 2023; Castillo, 2021; Qalalwa & Ganapathy, 2023). Furthermore, other studies revealed that the good choice of teaching methods and activities in virtual learning strengthens the community relationship between students themselves and students with instructors (Martin, 2019; Rossydi & Masita, 2021). On the contrary, some studies took a pessimistic view of virtual learning, focusing on its limitations and challenges rather than its potential benefits. Tan *et al.* (2020a, b) found that students were not satisfied with virtual learning because of the lack of communication between them and their instructors. Furthermore, another downside of virtual learning is identified by Asmara (2020) as the challenge of effectively monitoring student attendance.

Investigating attitudes in virtual education is crucial. This is because attitudes significantly influence key aspects such as student engagement, motivation and adaptability in online environments (Chiu, 2023). For example, positive attitudes foster active participation and a willingness among students to explore innovative learning strategies, whereas negative attitudes often lead to disengagement and lower academic performance. Moreover, understanding students' perceptions provides valuable insights into their experiences with EVC, helping to identify areas of success and address challenges such as technological obstacles (Almahasees, Mohsen, & Amin, 2021). Therefore, this understanding becomes critical for educators to refine virtual learning systems to better align with diverse student needs. In addition, by examining attitudes, researchers can contribute to the design of more effective course structures, teaching methods and technological tools that enhance the learning experience (Kianinezhad, 2024). Consequently, understanding attitudes does not merely improve functionality; it also supports the emotional and cognitive needs of students, ensuring that virtual education systems are both effective and empathetic during and beyond the pandemic. To sum up, examining EFL students' attitudes during COVID-19 is particularly significant due to the pandemic's widespread and long-term effects on the educational system worldwide (Amirian, Abbasi, & Zolfagharkhani, 2023). There is a need to explore EFL students' attitudes and perceptions after the pandemic and to check the long-term impact of the attitudes developed during the pandemic continue the post-pandemic period, even after COVID-19 restrictions have been lifted (Islam *et al.*, 2023).

Despite the several global studies (Almahasees *et al.*, 2021; Chiu, 2023; Kianinezhad, 2024; Mukherjee & Maity, 2022) and studies in the Emirati context (Alawadhi & Abu-Ayyash, 2021; Islam *et al.*, 2023) reported above, the current study distinguishes itself from other studies

conducted in the UAE. For example, Islam *et al.* (2023) focused on Emirati students in different majors and during the pandemic, while our study examined EFL Emirati students' perceptions aftermath of the pandemic. Furthermore, Alawadhi & Abu-Ayyash (2021) recruited Emirati EFL students to perceive their perceptions on an online game called *Kahoot*. Our study investigates the long-term impact of COVID-19 on Emirati EFL students' perceptions on multiple dimensions, including their attitudes toward their instructors' positivity in virtual learning and their engagement in weekly language activities. Moreover, our study specifically investigates the difference in students' perceptions of the EVC concerning gender. We aim to explain the connections between our findings and previous studies, ultimately contributing to the development of a post-pandemic virtual learning model. The current study tries to stir the stagnant waters by addressing the following queries:

(1) What are the types of classroom activities employed in Emirati EVCs?

(2) How often do Emirati EFL students attend and participate in VC activities per week?

(3) What is the Emirati EFL students' experience of learning through VC?

(4) What is Emirati EFL students' perceptions of collaboration with their VC instructors?

(5) Are there any significant differences between the Emirati EFL students' perceptions on the benefits they get from VC attributed to gender?

Literature review

Virtual learning and the English virtual classroom

Virtual and online classrooms have moved to the forefront of education at all levels due to the global shift triggered by the COVID-19 pandemic, with their acceleration in both developed and developing contexts. The acceptance of virtual learning has significantly increased worldwide, prompting many universities to explore ways to integrate VCs into regular use in the future. From a self-determination theory (SDT) perspective, this shift has reshaped how autonomy, competence and relatedness are supported in digital learning spaces. Asmara (2020) states that "In a VC, instructors and students are all connected online via communication tools or their devices, such as a computer, laptop or smartphone at the same time" (p. 17). VC supports multiple modes of learning, including synchronous and asynchronous approaches. Perveen (2016) notes that asynchronous learning provides students with readily accessible materials, such as audio and video lectures, handouts, articles and PowerPoint presentations, which can be accessed anytime and anywhere through learning management systems (LMS) or similar platforms, thereby fostering learner autonomy. In contrast, synchronous learning is described as real-time instruction that occurs simultaneously via electronic methods. It includes tools such as voice or text chat rooms, enabling teacher–student and peer-to-peer interactions and video conferencing, which facilitates face-to-face communication (Perveen, 2016), elements that directly contribute to students' sense of relatedness in virtual environments.

We coined the term EVCs to refer to a digital learning environment where EFL students and instructors interact in real-time using internet-based platforms to teach and learn the English language. These classrooms enable live communication, collaboration and interactive activities regardless of distance. However, implementing VC for teaching EFL requires careful consideration of various factors, including technological infrastructure, curriculum design, student engagement strategies and teacher training to ensure effective and inclusive learning experiences (Mulyadi & Purnama, 2019). From an SDT perspective, effective EVC design should support autonomy by allowing flexibility and learner choice, competence by ensuring platforms are intuitive and feedback is timely and relatedness by fostering collaborative exchanges. Octaberlina and Muslimin (2020) highlighted the importance of tailored e-learning strategies to mitigate any barriers to virtual learning, such as diversifying materials to cater to different learning styles, providing immediate feedback to enhance engagement and

maintaining interaction through supplementary platforms like WhatsApp or Zoom. Likewise, Yani *et al.* (2021a, b) recommended that instructors adopt strategies to overcome virtual learning challenges by incorporating widely accessible tools (e.g. WhatsApp, YouTube) and providing direct guidance on assignments. Oraif and Elyas (2021) found that online learning can effectively engage EFL learners when supported by well-designed digital tools and interactive methods. The findings underscore how competence and relatedness can be nurtured in EVCs when technology aligns with pedagogical goals.

Education during the post-COVID period

The post-COVID period has reshaped the education system, with many institutions reconstructing teaching practices. The COVID-19 pandemic made a significant transformation in education, bringing virtual learning to the forefront globally (Islam *et al.*, 2023; Oraif & Elyas, 2021). From an SDT perspective, this shift offers new opportunities to enhance autonomy through flexible learning formats, competence through accessible and user-friendly tools and relatedness through sustained online interaction. In this context, the post-COVID period has been shown to boost student engagement and motivation through innovative tools such as gamification and digital comics (Chicaiza *et al.*, 2024; Castillo & Quinonez, 2022). Interestingly, Oraif and Elyas (2021) reported that Saudi high school female students expressed satisfaction with their online learning experience, attributing their positive perceptions to features such as flexibility, interactive resources and the accessibility of learning materials.

Furthermore, beyond integrating EFL students into VCs, several studies have reported the positive impact of this learning mode on students' sense of competence and skill development. Bilotserkovets *et al.* (2021) examined the integration of media literacy skills into the EFL VC using an experimental design in Ukraine and found that participants in the experimental group demonstrated significant improvements in both English proficiency and media literacy compared to the control group. Similarly, Chicaiza *et al.* (2024) investigated the impact of Kahoot on motivation and linguistic competence – particularly reading and writing – among 197 Latin American EFL learners in post-COVID virtual environments, with 90% of participants reporting that gamification features such as points and leaderboards boosted their motivation, thereby supporting SDT's competence and autonomy needs. Castillo and Quinonez (2022) explored the use of digital comics to enhance EFL vocabulary learning among public high school students in Ecuador during the COVID-19 pandemic, showing that creative, visually rich tools can foster interactive learning experiences. While these studies highlight the motivational and skill-based benefits of innovative tools, they also point to the need for balanced design to avoid cognitive overload, ensuring that competence is enhanced without overwhelming learners.

No single learning system is perfect and virtual learning lacks several basic elements that can hinder motivation and performance. Tang *et al.* (2020a, b) found that reduced relatedness, particularly due to limited communication with course instructors, was a major reason for student dissatisfaction in China. Moreover, Yani *et al.* (2021a, b) documented significant challenges in virtual learning environments, including diminished motivation, shortened attention spans and counterproductive assignment dependency – all of which can undermine SDT's competence and autonomy needs. Abidin *et al.* (2023) further reported issues such as unstable internet connections, limited teacher explanations and reduced engagement, pointing to equity concerns where access to reliable technology varies across learners. Therefore, studies have recommended mitigating these issues through international course design and blended models. For example, Meletiou-Mavrotheris, Oikonomidou, Klada, and Fyseki (2024) pointed out that despite these challenges, students supported integrating digital tools into traditional classrooms, suggesting the need for research on age-appropriate and context-specific strategies that balance innovation with cognitive and emotional well-being.

The importance of self-efficacy and course design

Although there are many factors to consider when setting up a VC, SDT emphasizes that competence – learners' belief in their ability to succeed – is central to sustained engagement and motivation. Self-efficacy and ease of use are therefore critical determinants of success. To use technology effectively, students must find it easy to navigate, feel confident in their skills and perceive online interactions as useful (Al-Maroof, Alhumaid, & Salloum, 2021). Similarly, Ramsin and Mayall (2019) found that English learners in Thailand (n = 856) showed a positive correlation between self-efficacy in online learning of English and active participation. Therefore, this is something that should be considered when students consider learning English through the online VC. These findings indicate that building competence through intuitive design, clear instructions and timely feedback can increase participation and persistence. Although most students are familiar with online platforms and advances in modern technology, Castillo (2021) observed that prior experience with a VC was linked to more positive attitudes toward learning English online. This suggests that instructors may benefit from surveying students prior to beginning virtual classes to ascertain their previous experiences, identify gaps in digital skills and tailor support, accordingly, thereby reducing the risk of cognitive overload and fostering a sense of mastery from the outset.

Male versus female students and personality types

Previous research has shown that male and female students sometimes differ in learning strategies, which can influence how autonomy, competence and relatedness are experienced in VC (Andini & Prastiyowati, 2021; Kwapong, 2021). However, findings on these differences are often context-specific. Andini and Prastiyowati (2021) found that among 37 English students, females employed more language learning strategies than their male counterparts. Female students used more cognitive, compensation and metacognitive strategies than their male counterparts. Kwapong (2021) noted that male students reported more positive attitudes toward the logical structure of online learning than female students. In addition, females placed a higher value on the level of interest in the course. Dang, Zhang, Amer, and Trainor (2020) reported that in blended learning contexts, female students were more in favor of this mode of learning than male students. Wang *et al.* (2022) observed many similarities in online learning behaviors across genders but also found notable differences: female students were more achievement-oriented and attentive to course dynamics, while male students tended to participate less actively. There is still a need to explore from an SDT perspective on how male and female students experience relatedness, competence and autonomy among Emirati EFL students.

Other studies have found that gender does not influence students' tendency to engage in VL. In a different context, Kwapong (2021) surveyed 752 students in Ghana, addressing online learning of both math and English during the COVID-19 pandemic. Interestingly, there was no significant gender difference in mathematics learning. However, when focusing on English language online learning, From an SDT perspective, these patterns suggest that female students may experience stronger relatedness through collaboration and peer support, while male students may require targeted strategies to strengthen engagement and interaction, addressing equity in motivational outcomes. In the same vein, Van and Thi (2021) found that in Vietnam, out of a large survey of 1,118 learners of English, females focused more on technical problems as well as considering the costs involved in online learning, whereas these factors were not so important for their male counterparts. However, for broader considerations such as "learner motivation, administrative or instructor-related issues, academic skills, and social interaction", no gender differences were observed. These mixed findings highlight that while gender may not universally predict engagement, contextual factors – such as technology access, financial constraints and support systems – can influence how students experience key psychological needs in virtual learning.

Despite extensive research on VCs, significant gaps remain in understanding their long-term impacts, particularly in specific contexts like the UAE. Most studies have focused broadly on global or regional trends, often overlooking the cultural, technological and educational specificity that shape EFL learners' experiences in distinct environments. Moreover, while the existing literature frequently addresses general challenges and advantages of virtual learning, there is limited focus on gender-based differences in perceptions and engagement. Critical areas such as digital fatigue, cognitive overload and equity in access to devices and stable internet remain underexplored, especially in Gulf and UAE settings. Furthermore, the intersection of VC tools and students' attitudes toward teacher collaboration, viewed through the SDT lens as supporting or hindering autonomy, competence and relatedness, has not been adequately examined, particularly in multilingual and diverse academic settings. This study aims to bridge these gaps by examining the unique perceptions of Emirati EFL students and highlighting the gender-specific attitudes and practices that influence their learning outcomes in the new normal era educational environment.

Conceptual framework

This study is grounded in SDT, a macro theory of human motivation developed by Deci and Ryan (1985, 2000), which posits that individuals' motivation and engagement in learning are influenced by the fulfillment of three basic psychological needs: autonomy, competence and relatedness. In educational contexts, autonomy refers to learners' perceived control and choice over their learning activities; competence reflects their sense of effectiveness and mastery and relatedness denotes their feelings of connection with peers and instructors (Deci & Ryan, 2000; Ryan & Deci, 2017). In the VC environment, these three needs manifest in specific ways. Autonomy can be fostered through flexible learning schedules, asynchronous resources and opportunities for self-directed learning (Chiu, 2023). Competence is supported when learners receive timely feedback, have access to user-friendly technology and engage in appropriately challenging tasks (Bilotserkovets *et al.*, 2021). Relatedness is enhanced through synchronous sessions, collaborative activities and meaningful instructor–student interactions (Salami & Althaqafi, 2023). Applying SDT to this study provides a lens to examine how post-pandemic virtual learning environments either support or thwart these psychological needs. For example, well-structured EVCs can enhance autonomy by allowing learners to choose when and how they access materials, strengthen competence through interactive tools and skill-building exercises and promote relatedness through real-time discussions and group work. Conversely, technological barriers, lack of feedback or limited opportunities for interaction may undermine these needs, leading to decreased motivation and engagement (Tang *et al.*, 2020a, b; Yani *et al.*, 2021a, b).

Methods

Research design

The study adopts a quantitative approach, utilizing a questionnaire developed by Bolstad and Lin (2009). The quantitative paradigm is well-suited for this study as it effectively measures perceptions across large student populations. Furthermore, this endeavour is grounded in SDT, as articulated by Deci and Ryan (1985, 2000). Applying SDT provides a lens to examine how post-pandemic virtual learning environments either support or thwart these psychological needs. Notwithstanding this quantitative orientation, the study incorporates select structured qualitative items amenable to numerical coding.

Participants

The participants were selected through voluntary convenience sampling. To ensure clarity, the researchers distributed the online questionnaire link to all English departments across the UAE, allowing only those who expressed interest to participate in the study. Of the

students at the English departments, 342 Emirati students responded to the questionnaire. The participants were gathered from all over the UAE and constituted different genders (90.6 % females and 9.4% males). They enrolled in nine universities that offer programs in English and literature: three are government institutions and six are private. These universities provide diverse academic and professional opportunities in this field. The participants belong to different age groups and educational levels. The majority (90.1%) were bachelor students, whereas 7.3% were master students, 1.2% doctoral and 1.2% post-doctoral students (Table 1). This variety of participants validated the results obtained. The questionnaire included an introduction explaining the research purpose and inviting EFL students to share their experiences with virtual learning. They were identified as volunteers for their participation. They are not obligated to do so. No names were required to ensure students' anonymity. While adopting voluntary response convenience sampling, there is a risk of self-selection bias, as more motivated students or those with stronger opinions about virtual learning may be more likely to participate, potentially skewing the findings. To mitigate this issue, we increased the overall sample size as suggested by Nguyen *et al.* (2021) to 320, which may help dilute the influence of self-selected participants, providing a more balanced perspective.

Instrument

A questionnaire adapted from Bolstad and Lin (2009) was utilized in this study, with specific modifications made to select items from the original questionnaire to align with the specific objectives of the current research. Bolstad and Lin's (2009) questionnaire was chosen for this study because of its proven reliability and relevance in assessing perceptions and experiences in virtual learning environments. Moreover, Bolstad & Lin's (2009) questionnaire was undertaken in a study due to its demonstrated reliability and relevance in assessing students' perception and experience in virtual learning environments. Notably, this questionnaire was developed as a report prepared for the Ministry of Education and published by the New Zealand Council for Educational Research, ensuring its originality.

Despite the decade that separates the study of Bolstad & Lin's (2009) from ours, both studies focus on virtual learning. The foundational insights provided by Bolstad and Lin remain pertinent, particularly as they have been utilized in subsequent studies, such as Humby (2013), which examined students' perceptions of virtual learning. We acknowledge the concern regarding the suitability of a tool developed over a decade ago, especially in light of the rapid evolution of virtual learning post-COVID-19. However, we believe that the core constructs assessed by Bolstad and Lin's questionnaire remain relevant and applicable to today's context, as their focus was on VCs. These VCs are the same environments that brought students together during both Bolstad and Lin's time and the current post-COVID era.

Table 1. Students' educational level and gender

Student's education level			Student's gender		
Variables	Frequency	Percent	Variables	Frequency	Percent
Bachelor	308	90.1	Female	310	90.6
Master	25	7.3	Male	32	9.4
Doctoral	5	1.5	Total	342	100
Post-doctoral	4	1.2			
Total	342	100			

Source(s): Authors' own elaboration

The modifications we made ensure that the instrument addresses contemporary issues and experiences in virtual learning environments. While reviewing some newer tools for VCs, they lack the consistency and validation offered by Bolstad and Lin's (2009) questionnaire. This urged us to adopt this proven instrument. Additionally, the questionnaire's adaptability allowed modifications to suit the specific needs of this study, ensuring its applicability to a post-COVID-19 learning environment. Moreover, we calculated questionnaire reliability after piloting it with 20 students. The calculated Cronbach's Alpha score of 0.77 reinforces the questionnaire's suitability for exploring Emirates EFL students' perception of EVCs.

The developed questionnaire consists of 33 items arranged across different domains. The questionnaire obtained contained different alternatives. The first part includes biographical questions related to gender and education. The second domain contains items measured on a four-frequency scale, comprising seven items numbered from 1 to 7. They are purposed to answer the first research question concerning the type of classroom activities pertaining to VC. The third domain also uses a four-frequency scale and includes items numbered from 8 to 15. They aimed to answer the second research question regarding the frequency of attending VC. These are followed by a yes/no question (item 16) and another item with four alternative responses (item 17) for checking students' future intention to participate in VC. Finally, the questionnaire concludes with two domains comprising items measured on five-point Likert scales, numbered from 18 to 33. They measured students' perceptions of collaboration with their VC instructors. While modifying the questionnaire, we paid attention to gauge students' perceptions on the long-term impact of COVID-19 on education, as it evaluates the shift to VCs, student adaptation, engagement levels and future intentions to participate in virtual learning.

The reliability of the questionnaire was tested using Cronbach's Alpha, which yielded a score of 0.77 and was considered satisfactory. The researchers ensured adherence to research ethics by obtaining approval for the study from the United Arab Emirates University. The university facilitated the distribution of the online questionnaire across various universities in the UAE, specifically targeting the departments of English, translation and literature. Responses were collected over two months. Interested participants submitted their responses, while those who chose not to participate were excluded.

Data analysis

A Google Form was used to collect responses from participants. The data collected were downloaded from Google Drive and imported into a Microsoft Excel document. These data were coded according to the different types of questions. The four frequency items were coded from (4 all/most of the time into 1 hardly/never); the Likert scales were coded from 1 strongly disagree to 5 strongly agree. Descriptive analysis was conducted using SPSS (Version 23), which included calculating percentages, mean scores and standard deviations. To examine the significant differences between male and female students, an inferential analysis was conducted using an independent sample *t*-test.

Results

Types of classroom activities employed in VC

According to Table 2, all the classroom activities occurred in the VC according to the students' perceptions in high positive frequency with an average mean score of 3.32 on a four-frequency scale with a mean high frequency and a standard deviation of 0.7083. Table 2 shows that these activities, e.g. the teacher talks through the classroom most of the time with a mean score (3.48) and standard deviation (0.634) and the teacher also goes through the students' assignments with a mean score and standard deviation of (3.27; 0.673), respectively. Furthermore, the teacher employs multimedia in the VC with the main score and standard deviation (3.09, 0.853), respectively. Additionally, the teacher directs questions to individual students, students ask the teacher questions and the teacher

Table 2. Types of activities performed during VC

Statements	Most/All classes	Some classes	A few classes	None of the classes	Mean	Std deviation
The teacher talks throughout most of the session	55.3	38.9	5.0	0.9	3.48	0.634
The teacher goes through our assignments/homework	38.9	51.5	8.2	1.5	3.27	0.673
The teacher shows the class multimedia presentations (e.g. PowerPoint, videos)	54.7	38.9	5.6	0.9	3.47	0.643
The teacher directs questions to individual students	36.5	42.1	16.1	5.3	3.09	0.853
Students ask the teacher questions	44.7	43.6	9.4	2.3	3.30	0.736
The teacher facilitates discussion between students	40.9	45.3	11.7	2.0	3.25	0.739
Overall	46.02	43	8.86	2.18	3.32	0.708

Source(s): Authors' own elaboration

facilitates discussion between students with a mean score and standard deviation of (3.09, 0.853; 3.25, 0.73929 and 3.25, 0.739), respectively.

Frequency of EFL students' practice of classroom activities

The second research question investigated the frequency of students' practice of classroom activities per week. Table 3 shows that 38.94% of the students practiced VC exercises three to four times a week, followed by 28.3% of them reported they practiced VC 5 or more times a week. Likely, 25.04 % of the students reported that they practiced the VC exercises one to two times a week. Finally, just 7.7% of the students reported that they do not attend VC at all.

EFL students' experience on English virtual classrooms

According to Table 4, the majority of students reported their willingness to learn through VCs. Nearly 41% of the students are not sure whether they learn through VC or not, whereas 37.7 %

Table 3. Frequency of students' practices to activities in VC per week

Statements	5 or more times a week	3–4 times a week	1–2 times a week	Rarely/ Never	Main	Std deviation
I mail/text/call my VC instructor for help	26.3	36.5	31.3	5.8	2.83	0.885
I have one-on-one VC sessions with my VC instructor	22.8	38.6	22.8	15.8	2.68	0.995
I approach instructor(s) within my university who teach/know the subject for help	27.8	38.3	23.7	10.2	2.83	0.948
I use study time to work on my VC assignments/homework	27.5	43.6	24.6	4.4	2.94	0.833
I access my VC platform (e.g. blackboard) to download homework, post discussions, etc.	37.1	*37.7*	22.8	2.3	3.09	0.828
I access other websites and videos recommended by my VC instructor	28.9	40.1	25.4	5.6	2.92	0.873
I search the Internet for useful websites for my VC class	30.7	44.7	18.7	5.8	3.00	0.854
I discuss my work with VC students within my university	31.9	42.7	19.0	6.4	3.00	0.876
Overall	28.3	38.94	25.04	7.7	2.87	0.898

Source(s): Authors' own elaboration

Table 4. Learning through VC again

Choices	Frequency	Percent
Yes	129	37.7 %
No	72	21.1 %
Maybe	141	41.2 %
Total	342	100 %

Source(s): Authors' own elaboration

of them are willing to learn through VC. On the contrary, just 21.1% of them said they do not like to learn through VC.

The students were also asked about the factors that would motivate them to learn through VC again. According to Table 5, above half of the students (55.8%) selected to learn through VC again because it is the only way to do the subject that they want to do. Around 29.5% of the students selected to learn through VC if they know the instructor is good. Only 8.2% of the students said they would learn through VC again if the connection to VC is reliable, while just 6.4% of them related their study through VC depends on the support they get from the university.

Students' perceptions on collaboration with their VC instructors

The fourth research question was analyzed according to a five-point Likert Scale. Table 6 shows that Emirati EFL students have high positive perceptions of the collaborative work of their instructors in the VC. Table 6 shows that students reported a positive main score of (4.00) and a standard deviation of (0.816) toward their instructors in the VCs. They viewed their instructors as accepting their ideas and giving them clear explanations of what to do before any exercise or task (M = 4.12, Std = 4.03), respectively. Furthermore, they reported that their

Table 5. Factors that motivate EFL learners to study through VC again

Statements	Frequency	Percent
If it is the only way to do a subject that I want to do	191	55.8
If I know that the VC instructor is good	101	29.5
If I have adequate support at my university	22	6.4
If the VC connection is reliable	28	8.2
Total	342	100

Source(s): Authors' own elaboration

Table 6. Students' perception of their VC instructors

Statements	*N*	Mean	Std. Deviation
My instructor is interested in my ideas	342	4.12	0.795
The instructor gives us clear expectations of what we are to do	342	4.03	0.745
My instructor keeps teaching till we understand	342	3.99	0.799
The instructor gives useful feedback on my work that helps me see what I need to do next and how to do it	342	3.92	0.825
The instructor introduces students to educational technology	342	3.96	0.863
The instructor uses examples that are relevant to my experience	342	3.99	0.864
I can count on the instructor for help when I need it	342	3.97	0.824
Average		4.00	0.816

Source(s): Authors' own elaboration

instructors continued teaching until they understood (M = 3.99) and gave them useful feedback (M = 3.9298). Likely, students stated that their instructor introduced the use of technology to them in their educational path (M = 3.96) and the instructor used real-life examples (M = 3.99). Students even have the trust to call their instructor when they need any help (M = 3.97). Overall, the results highlight the significance of collaborative and supportive teaching practices in light of ongoing educational changes due to the long-term effects of the COVID-19 pandemic. The long-term effects include greater flexibility in instructional methods, enhanced technology integration and a need for ongoing professional development for educators. Together, these elements are essential for shaping future educational strategies and improving the virtual learning experience.

Differences between male and female students' perceptions of the benefits they get from VC

Table 7 presents the Emirati EFL students' perception of the benefits they get while studying virtually. Table 7 shows that Emirati female students reported an average mean score of (3.93) and standard deviation of (0.556), whereas male students reported a slightly lower mean score (3.61) and standard deviation of (0.929). Before checking the difference between female and male students' perception of the benefit they get from VC, we first assess the equality of variance using Levene's test, given the unequal numbers of male and female students. Levene's test revealed a significant difference between the groups ($F = 19.624$, and Sig. = 0.000). Therefore, we should use the results of unequal variance. Although there is a difference in the mean scores between female and male students, this difference seems to be insignificant ($t = 1.944$, df = 33.333 and Sig P value = 0.06). Thus, the perceptions of male and female students regarding the benefits they derive from VC are not considerably different.

The investigation of gender differences in attitudes toward virtual education, despite the disparity in representation (90.6% female and 9.4% male), is both relevant and necessary due to its implications for equity and inclusivity in educational practice.

Discussion

The study reported that all types of classroom activities were employed at a high level in the VCs. This finding underscores the efficacy of VC as an environment for English practice, an instructional domain historically dominated by face-to-face. This finding is in line with Mulyadi and Purnama's (2019) study, which affirmed that English courses are adapted with little difficulty and EFL learners showed their attraction while studying through the online classroom. It is crucial to understand students' experiences and attitudes during COVID-19 for informing current educational practices and shaping future learning environments. It is well known that pandemics have altered education delivery. Yet, analyzing students' perceptions helps educators and policymakers identify effective strategies for virtual learning. Furthermore, our findings contribute to decoding the long-term impact of the pandemic on

Table 7. Gender difference in the benefits they get from VC

Gender	*N*	Mean	Std. Deviation	Levene's test for equality of variances F	Sig	*t*	df	Sig. (2-Tailed)
Females	310	3.93	0.556	19.624	0.000	1.944	33.333	0.060
Males	32	3.61	0.929					

Source(s): Authors' own elaboration

education by highlighting how students adapted to EVCs and the implications of these adaptations for ongoing instructional design.

It has been found that students practiced VC three to four times a week. This attendance appears higher than in a physical classroom. However, this reported frequency of students attending EVCs may be influenced by the obligatory nature of attendance during the pandemic and the availability of synchrony and asynchronous learning options. However, there should be an investigation into the number of exercises that students do per week. This finding reported that students attended the VC more frequently than they typically attended physical classrooms. This may be due to the synchronous and asynchronous types of online learning. The more class sessions reported by the students, the more they benefit from continuous improvement. Castillo (2021) revealed that experienced students in VC not only feel positive toward such a platform but also have an interest in learning English. The long-term effect of COVID-19 on the learning mode makes students use VC on a daily basis. This is confirmed by Abdellatif *et al.* (2023), who reported that Emirati students use VC for more than five hours a day.

Furthermore, the study enquired about the types of interactions between EFL students and their instructors. These results underscore the suitability of VC in the EFL learning/teaching process and highlight the central role of supportive, communicative instructors in maintaining engagement, especially in the post-pandemic context. This result aligns with Abdellatif *et al.* (2023), who VC increases interaction between students and instructors in the Emirati context. The students' engagement may be enhanced due to the long-term effect of VC on students. For instance, during the COVID-19 pandemic, Al-Khresheh (2023) pointed out that Jordanian EFL students showed moderate levels of engagement. Later on, Tjalla, Syamsir, Zulfah, Sunubi, and Arqam (2023) reported divergent interaction activities in virtual EFL classes. However, the level of students' engagement is based on the instructor's supportive style for developing students' participation in VC (Salami & Althaqafi, 2023). Rossydi and Masita (2021) demonstrated that when virtual exercises are effectively integrated, they foster reciprocal relationships among students and between students and instructors. Furthermore, Martin (2019) reported that the use of videos made by instructors to impart course information rather than pages of text can go some way in the VC setting to building relationships between instructors and students.

The study found that although female students reported slightly higher perceptions of the benefits of studying through VC ($M = 3.93$) compared to male students ($M = 3.61$), this difference was not statistically significant ($p = 0.06$). This outcome contrasts with several previous studies (e.g. Dang *et al.*, 2020; Oraif & Elyas, 2021; Wang *et al.*, 2022) that reported significant gender-based differences in favor of female students. The discrepancy may be due to contextual factors, such as the post-pandemic normalization of virtual learning in the UAE, the smaller proportion of male participants or cultural differences in EFL classroom dynamics. While our findings suggest that male and female students in this context experienced comparable benefits from VC, the slight mean gap observed may still reflect underlying tendencies noted in earlier research – such as females' preference for collaborative learning or greater attentiveness to course dynamics. Future research could explore these patterns in more depth to determine whether the absence of significant differences is consistent across larger, more balanced samples or specific to the present study's context.

The findings of this study align with several key observations from the reviewed literature on VCs. For example, the positive perception of Emirati students regarding VC activities mirrors the findings of Mulyadi and Purnama (2019), who reported that English courses are well-suited for virtual environments, with EFL learners expressing satisfaction with the flexibility and accessibility of online learning. Similarly, the high frequency of student engagement with VC activities, observed at three to four times per week in this study, aligns with Castillo (2021), who found that students with prior experience in VCs demonstrated both positive attitudes and greater participation in such platforms.

Additionally, the study's observation of positive student – instructor collaboration in VCs supports the findings of Rossydi and Masita (2021), who emphasized that well-structured virtual exercises strengthen relationships between students and instructors. Martin (2019) similarly highlighted the effectiveness of using engaging tools, such as videos created by instructors, to foster meaningful interactions. While applicable in both virtual and face-to-face classes, their strategic use in virtual settings can particularly enhance student engagement and deepen learning experiences.

Conclusion

Although COVID-19 has impacted the education system during its outbreak, it has a long-term, continuous effect on today's classrooms. Adopting technology during the pandemic leads to an integrative approach in digital learning. Additionally, such an effect has transferred pedagogical practices, encouraging both students and instructors to incorporate online tools into the learning/teaching process. Shifting to VCs has provided more opportunities for personalized learning, allowing students to get their needs. Thus, understanding such changes is crucial for policy makers to navigate the education system. Many universities increasingly use virtual or hybrid classrooms to instruct their students. The success of EVCs depends on the existence of some factors.

EFL instructors must carefully set up VCs to minimize the loss that students are accustomed to getting in face-to-face learning to be successful in the VC. They should also maximize the benefits that are associated with VC to compensate students for their physical presence. Also, considerations must be taken in course design to assign VC as an integral complementary part to the physical classrooms. EFL instructors should be trained on techniques that help them communicate with students to achieve the best results.

In this study, VCs were perceived positively by EFL students. EFL instructors are in crucial need of strategies to effectively utilize VC for teaching various language skills and enhancing learning outcomes. They are required to construct communities of practices where groups of EFL instructors share their ideas of teaching speaking, writing, reading, grammar and vocabulary.

Future research could investigate effective methods for distributing teaching materials across both physical and VC settings. Additionally, researchers in the field of EFL might explore the feasibility of enabling instructors to deliver lectures across multiple departments within a university or even across different institutions, thereby allowing students to benefit from diverse expertise.

Based on the results and on the fact that each research is accompanied by some drawbacks, this study was only based on a quantitative method, utilizing self-reported data, which presents a limitation that needs to be addressed in further research. To enhance the representation of the findings, a random sampling method should be implemented. Moreover, while sampling undergraduate and postgraduate cohorts, the findings did not clearly delineate which academic level (bachelor's, master's or doctoral) exhibited more favorable perceptions of VC. Furthermore, the study lacks of qualitative insights and the potential impact of cultural or institutional factors. Mixed methods are more reliable to investigate EFL students' preferences and practices of VC after these classes become normal.

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