



# Nursing Students' Perspectives and Readiness to Transition to E-Learning During COVID-19 in the UAE: A Cross-Sectional Study

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**Introduction:** The 2020 COVID-19 crisis affected all sectors, including education. This study explored the experiences and challenges faced by tertiary students in the United Arab Emirates when they were suddenly required to transition from traditional classroom learning to E-learning following the outbreak of COVID-19.

**Methods:** This cross-sectional study used mixed methods to collect and analyse qualitative and quantitative data. The participants were Nursing students involved in clinical training.

**Results:** Most students (87%) reported inexperience with studying via E-learning. Challenges encountered included the lack of privacy, Internet connection issues, problems with the teaching platform and communication difficulties. Some students also reported that instructors were slow at responding to their needs. The lack of robust internet coverage was a major overarching issue that affected communication, students' engagement, preparedness for E-learning, and other challenges.

**Discussion:** This study is significant because it highlights the challenges experienced by Nursing Students during the rapid transition from traditional education to e-learning. It enables the faculty to understand and support students during the time of crisis. Communication with students needs to be streamlined for successful E-learning. Authorities should provide more essential infrastructure such as reliable and stable Internet connectivity to strengthen the E-learning approach.

**Keywords:** E-learning, independent-learning, tertiary, COVID-19, coronavirus, online-learning, nursing student, traditional education

## Introduction

The 2020 COVID-19 crisis, which was officially declared a pandemic by the World Health Organisation (WHO) on 11 March 2020,<sup>1</sup> had a major impact across government sectors, including education. Globally, the pandemic resulted in a mandatory shift from traditional face-to-face education methods to electronic learning (E-learning) and teaching. E-learning is defined as learning supported by digital electronic tools and media.<sup>2</sup> E-learning has gained popularity, and has become the *modus operandi* for educational institutions insofar as it enables learning to continue across time and space. This means that E-learning was able to minimise the risk for exposure to COVID-19.<sup>3</sup> In response to the COVID-19 pandemic, the United Arab Emirates (UAE) closed international borders and implemented a nationwide distance learning policy for the education sector from March 2020 until the completion of the academic year in July 2020. This decision

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affected all UAE public and private schools as well as higher education institutions, and was congruent with the WHO's recommendations for preventive measures during the pandemic. Other measures included personal protective equipment, the use of hand sanitizers, handwashing and social distancing. However, the immediate challenge this mandate posed for higher education was ensuring continuity of the teaching and learning process from the classroom to the virtual model.

E-learning has technologically advanced in various fields over the last two decades, including in higher education.<sup>4</sup> There are various approaches to E-learning, including courses or programmes delivered fully online, as is the case with the Open University and Massive Open E-Learning Courses. E-learning can also operate as a blended model, where an E-learning component supports and supplements face-to-face campus teaching. E-learning therefore offers higher education students a flexible and convenient means of obtaining their qualifications.

Campus learning refers to instruction that occurs at the physical site of an institution, such as in classrooms, lecture halls and laboratories, where students have direct access to and contact with their instructors. It is generally agreed that the face-to-face element of campus learning with human interaction, eye contact, facial expressions and verbal cues is vital in promoting student-lecturer interaction and engagement in the learning process.<sup>5</sup> E-learning depends on interactive nature of the virtual classroom is central. This helps in maintaining positive and productive experiences for learners and instructors, while simulating the face-to-face experience.<sup>6</sup> Consistency of the instructor-student interaction is crucial to maintain students' motivation for learning. As it was important to maintain and continue learning during a crisis such as the COVID-19 pandemic, higher learning institutions needed to have the resilience to maintain that continuity.<sup>4</sup> Organisational resilience is defined as an organisation's ability to survive a crisis and thrive in a world of uncertainty; this resilience requires cooperation, preparedness and readiness from both educators and students.<sup>7</sup>

Theoretically, while the need to move from traditional face-to-face on campus learning to virtual mode was urgent, a number of pedagogical considerations were made to examine course design and management. The asynchronous classes were designed around constructivist and instructivist paradigms where the instructivist theory was followed in proving the learners with a clear course structure, learning objectives, course materials and

periodical assessments for the learners to determine their progress. Whilst, constructivist theory was considered to perceive learners as active rather than passive.<sup>8</sup> This approach allowed opportunity for students to participate in collaborative activities using discussion board and break out rooms. Learners can make use of recorded lectures for revision if necessary.

## Adaptation to E-Learning During a Crisis

The recent "forced" move to E-learning resulted in this method of education becoming the new norm in educational institutions, especially as COVID-19 became widespread globally. It was necessary that the move to E-learning occurred quickly for educational institutions and staff.<sup>9</sup> However, there is a paucity of research on how educational institutions should respond to a health crisis in general.

The most extensive available research on a university's rapid transition to E-learning during a crisis was conducted by a group of faculty members from the University of Canterbury (UC) in Christchurch, New Zealand. This transition to E-learning followed the 2010–2011 seismic events that affected the region. The UC faculty described a situation in which teaching practices had to be rapidly modified as it became apparent that "normal teaching methods were not viable".<sup>10</sup> Similarly, the COVID-19 pandemic resulted in a sudden disruption to normal teaching methods in the UAE and globally, although this was not as sudden as the case described in the New Zealand situation. The notable difference between the above research and the present study is the nature of the crisis itself; the crisis experienced in Canterbury in 2011 resulted from a natural disaster (earthquake), whereas this study was conducted in the context of a health pandemic (COVID-19) that occurred more gradually.

In the aftermath of the seismic events in Canterbury, the most pressing initial concern for the University of Canterbury (UC) was to re-establish communication with scattered students, staff and faculty.<sup>4</sup> In the case of the COVID pandemic in the UAE, it was important to re-establish communication between students and faculty following the lockdown. Further, the most significant disruption in the UAE was the mandate to work and study from home to prevent the spread of infection; this occurred gradually in contrast to the sudden New Zealand earthquake. To minimise disruptions to UAE learning programmes, the initial response of the University of Sharjah College of Health Sciences was to halt campus

learning with immediate effect by moving the Spring break forward.

The UC researchers highlighted the importance of having sufficient institutional information technology (IT) support for E-learning technologies, which was also an issue in the UAE. Ayebi-Arthur argued that IT support for academics and students was essential for the uptake of E-learning, despite the UC being generally fairly well-prepared for delivery of programmes via E-learning with sound IT infrastructure, existing use of learning management systems and some courses already offered by E-learning.<sup>4</sup> However, Mackey et al were ambivalent regarding the issue of preparedness for E-learning, noting that although staff were more confident in adopting a blended learning approach, there was a marked difference between pre-planned blended delivery and the “rapid adaptations and innovations required to meet changing circumstances in disaster conditions”.<sup>10</sup>

A central theme in the work following the Canterbury earthquakes was resilience, which “was forged by necessity” by the crisis.<sup>11</sup> Ayebi-Arthur noted the resilience of UC with regard to E-learning grew over the course of the series of earthquakes, even though the university had no established E-learning strategy.<sup>4</sup> UC faculty members generally viewed the impact of the crisis on E-learning and its adaptation and development by the university as positive. The authors emphasised the idea of crisis as a stimulus for innovation, arguing that

An organisation can be stimulated to innovate, making rapid changes to its structures and practices and adapting more information, communication, and teaching technologies.<sup>11</sup>

In addition, they suggested that adaptability, collegiality and resourcefulness displayed by colleagues and UC staff during the crisis contributed to the development of institutional resilience, which was a valuable outcome of the crisis.<sup>11</sup> In the context of the COVID-19 pandemic, Basilaia and Kvavadze investigated the impact of transitioning to E-learning for school students in Georgia. Like the UAE education system, the Georgian system was based on traditional and modern classroom education.<sup>12</sup>

A recent study by Rad et al found that dental students in the UAE perceived the rapid transition to E-learning due to COVID-19 favourably.<sup>13</sup> However, this was not without challenges such as identifying opportunities that needed to be capitalised upon. That study noted that higher education stakeholders needed to work together and share

knowledge and highlighted the need to explore students’ perspectives. All of these previous studies raised the question as to whether organisations can ever be fully prepared for such crises. We attempted to replicate these studies in the context of the shift to E-learning during among higher education students the COVID-19 pandemic in the UAE.

## Aim

The primary aim of this study was to explore the perceptions of tertiary nursing students about their experiences during the sudden transition from traditional classroom learning to E-learning during the COVID-19 crisis.

## Methods

This study aimed to assess and understand students’ perspectives of the sudden and dramatic changes in teaching and learning following the shift to E-learning during the COVID-19 pandemic. This research was an exploration of students’ perspectives of the rapid transition from classroom learning to E-learning. We investigated students’ level of preparedness (or lack thereof) to identify the challenges experienced during this unprecedented transition.

## Study Design

This study used a cross-sectional design and organized based on STROBE guidelines,<sup>14</sup> and used mixed methods for data collection and analysis. This study adopted a descriptive approach because of the sudden nature of the transition from one form of teaching to another.<sup>13</sup> Data collection and analysis incorporated quantitative and qualitative paradigms. Polit and Tatano argued that health professional researchers, regardless of their discipline, should engage in a range of research activities that integrate both paradigms to address increasingly complex clinical and learning issues.<sup>15</sup>

## Population and Sample

The study population comprised university students from the UAE following the sudden and dramatic changes in learning methods during the COVID-19 outbreak. Convenience sampling was used to identify participants. To estimate the sample, we used the United States Center for Diseases calculator, called StatCalc EpiInfo<sup>TM</sup>.<sup>16</sup> The size was larger but due to Covid-19 challenges, we were able to recruit 94 participants.

## Data Collection Tool

Data were collected using the Revised McVay Readiness for E-Learning Questionnaire,<sup>17,18</sup> which had previously been tested for reliability and validity by Smith, Murphy and Mahoney.<sup>19</sup> This tool has been widely used in studies that assessed students' readiness to undertake their studies via E-learning. This instrument used closed and open-ended questions, which we adapted to suit the context and needs of this study.

## Ethical Considerations

Ethics approval was obtained from an appropriate Research Ethics Committee. Informed consent from participants was submission of a completed survey considered to indicate consent to participate. The study was guided by the Helsinki Declaration. The consent form and information sheet were provided to the respondents in both Arabic and English. We confirm that the participants informed consent included the publication of anonymized responses. Ethical approval was obtained from the UOS Research Ethics Committee, with approval number REC-20-03-04-02-S.

Ethics application was submitted to Fatima College of Health Sciences Research Ethics Committee (REC), and approval was granted (REC Approval number INTSTF004BSN20). All potential study participants received an email inviting them to participate in the survey with a link to the survey. The participant information sheet explained what the study was about. Students were advised that they could stop the survey at any time if they felt uncomfortable. All respondents agree to participate in the study.

## Data Collection

The survey questionnaire was distributed electronically via email. A survey link and an invitation to participate was emailed to the students with a survey link. They were then requested to forward the link to other potential respondents. Participants that chose to complete the survey submitted the completed questionnaire electronically.

## Data Analysis

Quantitative data were coded and analyzed using STATA<sup>20</sup> and reported as descriptive statistics (numbers and percentages). A variety of descriptive and other epidemiological techniques were used to conduct various analyses. Qualitative data were analysed using content analysis.<sup>21</sup>

Data from open-ended questionnaire were grouped in themes and then organised in sub-groups to put meaning to the descriptive findings.

## Results

The highest percentage of positive responses concerned preparation for E-learning, where 55% were prepared most of the time. This study investigated preparedness for E-learning from students' perspectives, given the impact of the dramatic changes to learning methods following the COVID-19 outbreak. In total, 94 students participated in this study. The findings revealed the challenges encountered. Most participants (96%) were aged 18–24 years and all participants were female nursing students (Table 1). Most (80%) participants were first- or second-year students. The most common level of educational attainment was Higher School Certificate (82%), with the remainder having bachelor's degrees or diplomas (Table 1).

Participants were asked if E-learning was of equal quality to traditional classroom learning. Approximately 42% of participants indicated that the quality of E-learning was equal to that of traditional learning all or most of the time. However, 43% perceived the two learning methods as "sometimes" equal.

Most participants (87%) reported that they had no previous experience with E-learning (Table 2). One respondent wrote, "I have never experienced E-learning and I wish that we didn't have to experience it now". About 47% of participants rarely or sometimes had access to Internet Access in general, or the ability to search the

**Table 1** Participants' Demographic Information and Levels of Study and Qualifications

Age, Years	n	%	Gender	n	%
25–34	4	4	Female	94	100
18–24	90	96	Male	0	0
Total	94	100	Total	94	100
Level of Study, Year	n	%	Qualification	n	%
1	35	37	Bachelor's degree	8	9
2	41	44	Diploma	6	6
3	12	13	HSC	77	82
4	6	6	Others	3	3
Total	94	100	Total	94	100

**Table 2** Participants' Motivation for E-Learning

Motivated	n	%
Rarely	14	15
Sometimes	40	43
Most of the time	25	27
All of the time	14	15
Total	93	100

Internet for specific information. For example, students reported that:

There are problems with connection [that] could stress students out, but the recording[s] help[ed] us get back on track, which we can do in traditional classes [without] electronic issues. Camera exams really when the lockdown disconnects, and we are forced to repeat the exam another day; [this was a] waste of effort and time.

However, another participant noted that, "I studied before in Higher Colleges of Technology (HCT), so I had some information about E-learning and it has bad and positive effects" (Table 3). Students who had previously experienced E-learning had a positive appreciation of E-learning. Approximately 50% of participants were comfortable communicating with other students or instructors over

**Table 3** E-Learning Experience, Comfort, Knowledge and Willingness to Communicate

E-Learning Experience	n	%	Comfort in Communicating	n	%
Yes	13	16	Rarely	16	17
No	81	86	Sometimes	34	36
total	94	100	Most of the time	26	28
			All of the time	18	19
			Total	94	100
Access to Internet	n	%	Willing to Communicate	n	%
Rarely	4	4	Rarely	15	16
Sometimes	40	43	Sometime times	35	37
Most of the time	36	38	Most of the times	29	31
All of the time	14	15	All the time	15	16
Total	94	100	Total	94	100

the Internet (Table 3), and 47% were willing to communicate in this way all of the time as part of their learning.

Factors that contributed to the challenges in E-learning included poor or unavailable Internet connections, lack of privacy, insufficient room at home for learning and learning platform connection issues. Furthermore, Internet issues were highlighted by several students, especially poor connection and lagging transmissions; for example, "sometimes the blackboard did not work, because of the many emails from other students". The results indicated that about 4% of participating students rarely had access to Internet knowledge, which highlighted the need to address Internet connectivity more broadly in the UAE.

More than half of the participants said they were rarely or sometimes motivated to engage in E-learning, and only 42% were motivated most or all of the time (Table 2). One student stated:

The system makes it more difficult for them to communicate between their classmates and/or lecturers. This also includes issues like lack of understanding of the lessons in the right way, feeling that they are not learning instead

**Table 4** Comfort with E-Learning

Set Aside Time to Learn	n	%	Comfortable with Online Written Communication	(n)	%
Rarely	13	14	Rarely	23	25
Sometimes	39	42	Sometimes	30	32
Most of the time	27	29	Most of the time	23	25
All of the time	14	15	All of the time	17	18
Total	93	100	Total	93	100
My Experience Was Useful	n	%	Review the Work	n	%
Rarely	23	25	Rarely	15	16
Sometimes	27	29	Sometimes	32	34
Most of the time	29	31	Most of the time	24	26
All of the time	14	15	All of the time	23	24
Total	93	100	Total	94	100

**Table 5** Learning Drive

<b>Disciplined and Planned Well</b>	n	%	<b>High Degree of Initiative</b>	n	%
Rarely	17	18	Rarely	8	9
Sometimes	40	43	Sometimes	40	44
Most of the time	23	25	Most of the time	25	28
All of the time	13	14	All of the time	17	19
Total	93	100	Total	90	100
<b>Time Management</b>	n	%	<b>Responsible for Learning</b>	n	%
Rarely	26	28	Rarely	12	13
Sometimes	34	36	Sometimes	31	33
Most of the time	20	21	Most of the time	17	18
All of the time	14	15	All of the time	33	35
Total	94	100	Total	93	100
<b>Independent Work</b>	n	%			
Rarely	16	17			
Sometimes	44	47			
Most of the time	18	19			
All of the time	16	17			
Total	94	100			

they feel that they are just playing and for some, it was easier for them to skip classes.

Only 44% of the participants stated that they normally set aside time for learning and reported that they were self-disciplined (Table 4). In addition, 54% reported that their previous experience was not helpful in their transition to E-learning during the COVID-19 pandemic. Similarly, over half of the participants were not comfortable with online written communication. An equal number of participants reported to have reviewed their work compared to those who had not reviewed their work.

About 40% of the participants reported they had the required discipline to plan their studies well, and 47% reported a high degree of initiative (Table 5). The majority of participants (64%) indicated they had poor time management, and 46% felt that they were not responsible for their learning. However, 36% of the participants perceived that they were independent with their E-learning.

Overall, 66% of the participants reported that they were prepared for E-learning. The highest percentage of

positive responses concerned preparation for E-learning, where 55% were prepared most of the time.

## Discussion

The primary purpose of this study was to document students' perspectives of the experiences and challenges encountered in the sudden transition from classroom learning to E-learning during COVID-19. There is a paucity of evidence from the literature documenting how universities have responded to this pandemic. However, we found two previous studies concerning this topic. Basilaia and Kvavadze investigated the impact of transitioning to E-learning during COVID-19 in the high school context in Georgia.<sup>12</sup> Raad and Khan investigated a similar issue in the context of a university in India.<sup>22</sup> Consistent with our study, their findings revealed that the sudden transition from traditional classroom learning to E-learning was successful. Our results showed that 42% of participating students were not motivated to study via E-learning, although nearly half (47%) reported a high degree of initiative (all and most of the time). These results were also consistent with the findings of a systematic review undertaken by George et al, which explored knowledge, skills, attitudes and satisfaction with E-learning among undergraduates in health professional education.<sup>23</sup>

Our results indicated that half of the participating students felt that E-learning was successful, and 66% reported that they were prepared for E-learning. This suggested that students were satisfied with their experiences of the new learning approach and the associated interactions. This could be because students were able to participate in their learning in a more flexible and convenient manner than in traditional face-to-face learning. Despite these positive results, there were challenges reported by around 50% of participants.

Students were also asked for suggestions about what could be done to assist them with E-learning. Participants suggested that recording the class lectures would be helpful, as this would allow them to refer back to the lecture as needed. Students noted that the E-learning recordings would allow them to review anything that they had missed during the asynchronous lecture. Some students argued that E-learning exams should be replaced by assignments or research. However, others refused to answer these survey questions and stated that "it was not fair asking them what to do". A few students suffered from not understanding the lessons because the instructor was not in a physical classroom. Other students reported lack of network

availability and lack of laptops, and even suggested that laptops and Internet connectivity should be provided free-of-charge by the university.

Participants reported that the challenges of E-learning/teaching included lack of privacy, problems connecting to the learning platform and difficulties in communication. They further reported that some instructors were slow at responding to students' emails and that they had no chances to interact with their instructors or classmates. Others found that the presence of the camera during the exam was tiring and distracting. Although around half of the participants had access to the Internet, they were not comfortable communicating online with each other or with their instructors. This may be related to cultural perspectives and other issues from the students' perspectives, such as lack of access to the Internet and infrastructure.

## Limitations

The key limitation of this study was that recruitment of participants was challenging as the study took place during the lockdown period. A larger sample would have been desirable and more representative. Another limitation was that the data collection instrument focused on student behaviour and attitudes as predictors of online learning, although participants in this study had no option for engagement other than through E-learning<sup>16,17</sup>. Another limitation was that there were no local and/or national studies to which to compare and contrast our findings therefore symptomatic of the emerging research at the time of crisis in the region.

## Conclusion

Research on the use and advancement of E-learning in higher education under crisis conditions such as the COVID-19 pandemic is relatively uncharted territory. This study therefore aimed to understand the experiences and challenges encountered by higher education students in the UAE during the sudden transition from classroom teaching and learning to E-learning. The challenges of E-learning as reported by participants included lack of privacy, connection problems and difficulties in communication with instruction. They reported that some instructors were slow at responding to students' emails, and interaction with instructors and classmates was limited. Others found that the camera's presence during the exam was tiring and distracting. Overall, our findings suggest that although students may be reasonably prepared to deal with E-learning technology, they were not necessarily well

prepared for E-learning activities such as reading and writing, being clear and concise in responses, synthesising ideas, planning strategies, making arguments and working with others. The findings helped identify the significant challenges and adaptations necessary for future pedagogical approaches to teaching and learning and how students and staff can best be supported through those transitions. It generated significant insights into e-learning challenges in the Gulf Region may also inform further research which will build of these foundations.

## Data Sharing Statement

The datasets generated during the present study are not publicly available because of ethical restrictions but are available from the corresponding author on reasonable request.

## Ethics Approval and Consent to Participate

Ethics application was submitted to Fatima College of Health Sciences Research Ethics Committee (REC), and approval was granted (REC Approval number INTSTF004BSN20). All potential study participants received an email inviting them to participate in the survey with a link to the survey. The participant information sheet explained what the study was about. Students were advised that they could stop the survey at any time if they felt uncomfortable. All respondents agree to participate in the study.

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## Disclosure

The authors declare that they have no competing interests in this work.

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