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Challenges of Online Learning Systems during COVID-19 in the UAE universities and its Effect on Business Students' Academic Performance.

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Abstract

Purpose: All educational institutions in the United Arab Emirates (UAE) were obliged to remain closed during the COVID-19 pandemic and use online learning instead. This transformation, accelerated the usage of online learning and has placed more challenges to the higher education institutions in terms of students' academic performance. This paper empirically investigates the factors that were imposed during the COVID-19 pandemic to these online learning systems. E-assessment and social challenges are factors that need to be addressed as they had not been extensively studied before the pandemic.

Methodology: This study was designed as a quantitative research study using the convenience sampling technique to select students. The data was collected using online surveys distributed amongst undergraduate students in different business colleges around the UAE. The research model was assessed based on an analysis of 202 undergraduates' students. The data collected was analyzed using IBM SPSS statistics 26, and Smart PLS Structural Equation Modeling.

Findings: The results indicate that teaching challenges negatively affect students' performance, while the factors influencing the greatest impact are the assessment, technical, social, and communication challenges on UAE Business students' online learning and academic performance during COVID-19 pandemic.

Unique contribution to theory, practice and policy*:* this study provides a valuable perspective for understanding and explaining the challenges of student online learning and academic performance, as it emphasizes and recommends a reviewing of the teaching methodologies and tools to align with present-day online teaching and learning. Training is essential in order to enhance the academic staff's qualifications and technical skills during the COVID-19 ongoing situation.

Keywords: *United Arab Emirates (UAE), online learning, E-assessment, COVID-19 Pandemic, Challenges of online learning*

1. INTRODUCTION

Online education, which was developed from traditional distance learning, aims to provide educational opportunities for students who are geographically distant via online technology (Larmuseau et al., 2018; Moore et al., 2011; Wen & Hua, 2020; Zhu et al., 2020). The nature of online education during the pandemic differs from that before the pandemic, and the transition to online education during the pandemic has served a rent purpose typical of online education (Wen & Hua, 2020). As social distancing is required at this stage, universities are uncertain as to when in the future they will return to on-campus learning. Before COVID-19, online learning was implemented to provide a digital platform to support student learning processes at universities. Zayapragassarazan (2020) observes that in the online mode of flexible learning, students are provided with various choices for their learning, allowing them to take more responsibility for their learning. During COVID-19, Rieley (2020) states that the circumstances have made us realize that scenario planning is an urgent need for academic institutions around the world that are struggling to find alternatives to deal with this challenging situation. Crawford et al. (2020) suspect that status updates from each of the universities' positions will change significantly in the coming months as governments implement diverse directives relating to gatherings, social outings, and similar situations. According to Mahdy (2020), online education helps keep students up and running with an opportunity for self-study.

The COVID-19 outbreak and educational institution closures have made online learning mandatory and the only way for many schools and universities to continue their educational programs. Lederman (2020) states that due to the COVID-19 crisis, instructors and students both find themselves in a situation where they feel compelled to embrace the digital academic experience. Because of this world-closure situation, all educational institutions in the United Arab Emirates have rapidly been pushed to adopt a digital delivery model. Wu (2020) states that online learning was a test of organizational agility with many initiatives, focused on transitioning content to an online environment and not necessarily online pedagogy. According to Crawford et al. (2020), universities in the UAE are not progressing strategically to online teaching. Rather, they are moving to emergency online delivery of in-person content. The COVID-19 pandemic has created significant challenges for the global higher education community (Crawford et al., 2020). It is important to set realistic understandings of how online learning can adapt to the students' needs and challenges. Chen and Tseng (2012) classified the challenges that affect the actual use of e-learning into four categories: management challenges, technological challenges, implementation challenges, and cultural challenges. Almaiah et al. (2020) state that the critical factors that need to be addressed and should be taken into account in future plans that affect the usage of e-learning systems are (1) technological factors, (2) e-learning system quality factors, (3) trust factors, (4) self-efficacy factors and (5) cultural aspects. Al Hamad (2020) agree that perceived ease of use, subjective norms, accessibility,

enjoyment, and perceived usefulness can improve the behavioral intention to embrace an E-learning system.

Online learning in higher education and students' perceptions of learning have become subjects of interest for many researchers during the COVID-19 pandemic (Adnan & Anwar, 2020; Lederman, 2020; Liguori & Winkler, 2020; Mailizar et al., 2020; Mishra et al., 2020).Considering these various challenges will help address the problem and form a collective classification of the mentioned challenges that affect students' performance. The following question guided this review: specifically, during the COVID-19 pandemic. The study is going to answer one key question: What are the challenges affecting business students' academic performance during COVID-19 pandemic? This study identifies several challenges that are deemed consistent with the findings of previous studies and have been examined: teaching, technical, and communication challenges. Alternatively, two variables have not been measured prior to the COVID-19 pandemic: assessment challenges and social challenges. These two variables have not been considered crucial issues due to conducting traditional assessments and classes on campus in the majority of the universities except a few online universities in the region. Moreover, the social distancing requirements which was not considered before COVID-19 pandemic. This study will deliberate a total of five variables to be verified and reflected in relation to the current circumstances of the educational climate today. The structure of this study is as follows: the next section presents the article's review of previous studies of online learning challenges during the COVID-19 pandemic and its proposed hypotheses. Then, the research method is discussed, followed by the data analysis and presentation of the results. Finally, the research's contributions, implications, limitations, and directions for future research are presented.

2. Literature Review of E-learning Challenges

During the COVID-19 pandemic, several universities around the world were due to meet social distancing requirements and several health restrictions approved online learning. Lederman (2020) states that due to the COVID-19 crisis, teachers and students both find themselves in a situation where they feel compelled to embrace the digital academic experience. Innovative solutions by institutions can only help users deal with this pandemic (Liguori & Winkler, 2020). Mailizar et al. (2020) agree that COVID-19 has had a severe impact on students, instructors, and educational organizations worldwide. This rapid transformation to online learning is linked to various obstacles and challenges (Crawford et al., 2020). According to Kaur (2020), nobody knows when this pandemic will disappear entirely. Therefore, Universities modified their e-learning systems such as Moodle, Blackboard, and Banner, effectively, to support traditional distance learning (Adnan & Anwar, 2020; Tarhini et al., 2017). According to Mishra et al. (2020), online teaching-learning tools such as Zoom, Google Meet, Facebook, and YouTube streaming available for both teachers and students were put to need-based use. Several studies in the literature have addressed issues related to e-learning adoption in many countries

worldwide during the COVID-19 pandemic. These challenges are mentioned by these researchers are; system characteristics, internet experiences, and computer self-efficacy, technological challenges and IT barriers, lack of social distance and no interaction with the instructors, absence of traditional classroom and socialization response time, course design, poor network infrastructure, connection problems, computer self-efficacy and social distance. (Almaiah et al. 2020; Adnan & Anwar, 2020; Al-Hawari & Mouakket, 2010; Al Shboul et al., 2020; Almaiah & Al Mulhem, 2005; Almaiah et al., 2020; Dhawan, 2020; Elmer et al., 2020; Hidayat et al., 2020; Kenan et al., 2013; Eltahir, 2019; Labrague et al., 2021; Liu et al., 2010; Mishra et al., 2020; Mulhanga & Lima, 2017; Tull et al., 2020).

3. Research Hypothesis

The following section draws on the relationships to develop testable hypotheses, as represented in Figure 1. The hypotheses to be developed assume that teaching challenges affect students' intention to engage in online learning (H1). Assessment challenges affect students' intention to engage in online learning (H2), communications challenges affect students' intention to learn online (H4), technical challenges affect students' intention to learn online (H5), and students' intention to learn online affects students' performance (H6).

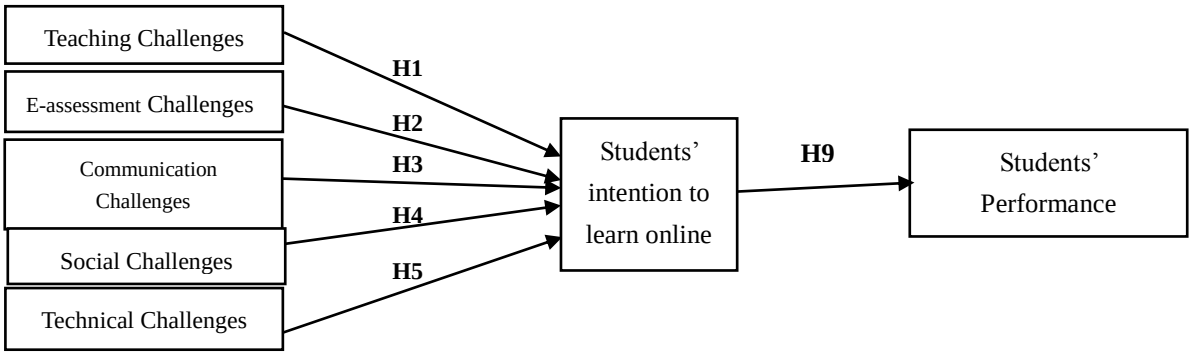

Figure 1
Research Model

3.1 Teaching Challenges

During the shift from on-campus to online learning as the universities remained closed, instructors in all universities shared concerns about providing flexible digital paths through the course material and resources, conducting online lectures, receiving students' work submissions, interacting with students, and guiding each student to successfully meet their learning goals. Zhong (2020) states that any content of the online course is usually discussed with the relevant course instructor by e-mail, which requires response time. According to Choi and Park (2006), the major pedagogical challenge stems from the inability of instructors to seamlessly transfer their face-to-face course materials online. However, using completely online teaching is challenging for both instructors and students. Elzainy et al. (2020) stated that during

COVID-19, the efficiency of instructions announced before online teaching, staff resistance and experience in online learning requirements were concerns. According to Adnan and Anwar (2020), the lack of face-to-face interaction with the instructor, response time, and absence of traditional classroom socialization were among some other issues highlighted by higher education students and with several academic institutions primarily focused on the transfer of educational content to the digital world and not specifically online teaching and delivery methods. Nuraeni et al. (2020) found that during COVID-19, most of the students were unsatisfied with how some staff members practiced e-learning, and the students' prefer face-to-face lectures compared to online learning. A previous study performed in a similar culture, the United Arab Emirates, Elzainy et al., (2020, :460) observed that the teachers felt worried about the shift into a new educational approach. According to Mishra et al. (2020) both teachers and students perceived a lack of motivation, as immediate feedback was not possible in this online teaching-learning transition phase. Thus, the following hypothesis is proposed:

H1: Teaching challenges positively influence students' intention to online learning.

3.2 E-assessment Challenges

As online assessment can be temperamental, this may yield all types of challenges that affect student performance. According to Benson (2003), assessing participant learning in online environments provides benefits and challenges. Although the electronic assessment approach is different in online and face-to-face environments, "the principles of assessment do not change in an online environment" (Benson, 2003: 71). Elzainy et al. (2020) state that online assessment ensured the staff about students' achievement in learning outcomes. The ability to solve any technical obstacle met during the online mock exam helped the e-assessment committee manage the subsequent exams appropriately (Gürsul & Keser, 2009). Designing e-assessment tools another challenge face e-assessment in a way that allows students to demonstrate their ability to solve real-life problems (Alsadoon, 2017). Furthermore, restrictions required on e-assessment include blocking students from viewing the questions after submitting the answers or limiting the time to ensure that all students are taking the test at the same time (Robles & Braathen, 2002). Online assessment is a crucial process and requires a certain design to provide an accurate measurement. According to Peytcheva-Forsytha and Aleksievab (2021:2) "The potential challenges of e-assessment slow down the process of its proliferation to some extent but the circumstances related to COVID-19 Pandemic forced the introduction of e-assessment in all educational stages, in most cases without providing enough time for preparation and prevention of possible e-assessment issues". Esposito and Principi (2020) state that e-assessment has been discussed in several papers, and researchers have observed many benefits and drawbacks related to instructors' and students' perceptions of educational institutions. Remote online delivery and assessment are novel experiences for many universities and present many challenges. It is particularly important to note how technology

that facilitates online delivery may in contrast, challenge academic integrity management (Gamage et al., 2020). Thus, the following hypothesis is proposed:

H2: E-assessment challenges positively influence students' intention to engage in online learning.

3.3 Communication Challenges

Communications between students in higher education become obvious challenges, and COVID-19 may become an obstacle for collaboration in the educational community. COVID-19 has dramatically reformed professors' communications, and peer-to-peer communication and interaction in-group discussions are not possible in online learning, which makes efficient and effective communications very difficult during COVID-19. According to Brammer and Clark (2020), COVID-19 has put considerable strain on schools regarding the clarity and timeliness of communications with stakeholders, especially with students and staff. Such distractions related to COVID-19 may result in the long-lasting adoption of modern communication tools. Hidayat et al. (2020) revealed in their study that there were two weaknesses of online learning: technical and communication weaknesses. Technical weakness is influenced by geographical factors, internet networks, and internet costs, while communication weaknesses include slow adaptation, learning media not being optimal, an interactive atmosphere that has not been developed, and the lack of an atmosphere of understanding (Byrnes et al., 2021). There is a general acknowledgment that peer-to-peer communication and interaction in-group discussions are often not feasible through virtual learning methods. Adnan and Anwar (2020) posit that higher education students among some other issues highlighted the lack of face-to-face interaction with the instructor, response time, and absence of traditional classroom socialization. Thus, the following hypothesis is proposed:

H3: Communication challenges positively influence students' intention to engage in online learning.

3.4 Social Challenges

Online learning facilitates online lectures, zoom meetings, and students using their own space. Achieving social distancing was a concern for safety regulations between university students during the COVID-19 pandemic. Adnan and Anwar (2020) found that the lack of on-campus socialization caused challenges for students to perform in-group projects in the distance learning mode. Students in universities experienced feelings of loneliness during isolation and university closures, and even after the partial reopening of universities, students miss participating in on-campus life and meeting their friends and peers. According to Bek (2017), university campuses are a hub of new and meaningful ideas, and naturally, students discover their passions and aspirations for the future in such a context. Elmer et al. (2020) stated the

importance of social contacts to students' mental health, and thus, offering starting points to identify and support students at higher risk of adverse psychological effects from social isolation during the COVID-19 pandemic. Tull et al. (2020) suggested that measures such as home, social distancing, and quarantine controls significantly contributed to loneliness among young people, as they keep them from socializing with their peers. Labrague et al. (2021) agree that loneliness was prevalent among college students during the period of mandatory lockdown designed to curtail the transmission of the coronavirus. This study focuses on the social challenges that influence students' intention to use online learning. Thus, the following hypothesis is proposed:

H4: Social challenges positively influence students' intention to learn online.

3.5 Technical challenges

Technical support is essential to carry out the online learning process and is a crucial factor affecting the usage of e-learning. Sánchez and Hueros (2010) underline the importance of technical support both personally and via the Web, as well as training users to use Moodle. Almaiah et al. (2020) agree that technical issues are one of the challenges that impede the usage of e-learning systems. Mulhanga and Lima (2017) mention that inadequate technical support may delay the successful implementation of existing e-learning projects. Mishra et al. (2020) agree that students faced specific problems such as connectivity and video issues due to their location remoteness and were not able to compromise the time required for machine learning. According to Huang et al. (2020), the reliability and availability of information communication technology infrastructure, learning tools, digital learning resources in the form of massive open online courses, e-books, e-notes, etc., have been of the utmost importance during the severity of the COVID-19 pandemic. Thus, the following hypothesis is proposed.

H5: Technical challenges positively influence students' intention to engage in online learning.

3.6 Students' Performance

Users can face many technical difficulties that hinder and slow the teaching-learning process (Favale et al., 2020). Amir et al. (2020) acknowledge that, comparing online and traditional learning methods, there is a higher preference toward e-learning than traditional classroom methods. Many empirical studies have been conducted to examine the various factors that affect students' academic performance. According to Naik et al. (2020), students use both audio and visual channels, which result in permanent and effective learning outcomes. Ahmad Uzir et al. (2019) and Jovanovic et al. (2019) state that the improvement in students' performance is due to adequate time management in the learning process. Mahdy (2020) found that the COVID-19 pandemic lockdown affected the academic performance of most participants in educational institutions to varying degrees, adding that university students' academic

performance does not only depend on the time students spent learning or memorizing information but is also affected by other variables. According to Gonzalez et al. (2020), good progress can be guaranteed students' academic year, and a real improvement in the students' learning performance can be recognized despite the COVID-19 quarantine. Thus, the following hypotheses is proposed:

H6: Students' intention to online learning positively affects students' performance.

4. Research Methodology

4.1 Measures

To test the proposed hypotheses, the constructs were measured using items developed by prior studies (Table 1).

Table 1

Constructs and Indicators of the Study

Construct	Indicator	Reference
Teaching Challenges (TEC)	TEC1: Conducting online teaching faces problems in accessing the internet. TEC2: Conducting teaching online faces problems in using e-learning resources. TEC3: Conducting teaching online does not facilitate the adoption of different teaching methods in the class. TEC4: Conducting teaching online faces problems during lecture processing. TEC5: Conducting teaching online faces problems in taking pop quizzes and exams during the class. TEC6: Conducting teaching online required technological skills and supportive training.	(Al Shboul et al., 2020; Choi & Park, 2006; Feng et al., 2019; König, Jäger-Biela, & Glutsch (2020)
E-assessment Challenges (AC)	AC1: Online assessment does not fully support the students' assessment goals and objectives. AC2: Online assessment does not support academic integrity. AC3: Online assessment does not providing friendly digital environments to take examinations, quizzes, and submit assignments and projects. AC4: Online assessment does not meet the students' expectations.	(Alsadon, 2017; Chang, Hajiyev & Su (2017); Elzainy et al., 2020)
Communication Challenges (CC)	CC1: Online learning facilitates communication between students and the instructors. CC2: Online learning facilitates collaboration between students and the instructors CC3: Online learning facilitates collaboration between the students to complete their assignments and projects. CC4: Online learning facilitates communication between the students and the university	(Alawamleh et al., 2020; Blasco-Arcas et al., 2013)
Social	CC1: Online learning makes students isolated.	(Feng et al., 2019)

Challenges (SC)	CC2: Online learning does not support communication among students during the lectures. CC3: Online learning does not support face-to-face communication between the instructors and the students. CC4: Online learning does not support group work and discussions during class time.	
Technology Challenges (TC)	TC1: Online lectures limit the interactions between the instructors and students during lectures. TC2: Online lectures suffer from low-quality technology during lectures. TC3: Online lectures limit the group working together during lectures. TC4: Lecturers or instructors are not adequately trained to conduct online teaching. TC5: Courses materials are not fully modified to support online teaching and learning	(Adnan & Anwar, 2020; Chen & Tseng, 2012; Jäger-Biela et al., 2020)
Intention to Learn (ITL)	ITL1: The online learning environment is not motivating. ITL2: My technological skills are not sufficient to accomplish the online learning tasks. ITL3: Online learning required more effort and time to prepare the online lectures. ITL4: Online learning makes the learning transition much easier than I expected. ITL5: Online learning makes learning more interesting.	(Wen & Hua, 2020)
Students' Performance (SP)	SP1: Online learning enables me to complete my semester successfully. SP2: Online learning could be an innovative way for universities to conduct learning. SP3: Online learning enables me to complete my quizzes and exams successfully SP4: Online learning enables me to communicate and collaborate with my peers to complete our groups' assignments and projects effectively SP5: Online learning enables me to communicate and interact with my instructors smoothly SP6: Online learning conducted during COVID-19 required improvement to reach the students' expectations.	(Mahdy, 2020; Roblyer et al., 2009)

4.2 Sample and Data Collection

A questionnaire survey was distributed online to undergraduate students in the first-, second-, third-, and final-year of business colleges across four universities in the UAE, including Ajman University, City University Ajman College, University of Sharjah, and the American University of Dubai, using a convenience sampling approach. The research used a quantitative method; the survey was conducted using GOOGLE Forms; and the links were shared with the students

through the WhatsApp group of lecturers in the four universities. The survey items were measured using a 5-point Likert scale. Within two weeks, 215 responses were received, and 202 were usable, which was seen as meeting the requirement of building an adequate model. Mundfrom et al. (2005) mentioned that to conduct factor analysis, the suggested minimum sample size was from 3 to 20 times the number of variables and the minimum sample size requirements for 180 different population conditions that varied in the number of factors, the number of variables per factor, and the level of commonality. According to Mooi et al. (2018, p. 47), "strength of samples comes from selecting samples accurately, rather their sizes." Therefore, a carefully selected small sample (150 and above) is more meaningful than a blindly selected large sample (300 and above) (Memon et al., 2020). Since 202 usable responses were received, this minimum sample size requirement was met.

4.3 Respondents

Table 2 summarizes the respondents' profiles in terms of their sex, academic level, majors in the business college and university locations in Ajman, Sharjah and Dubai.

Table 2.
Demographic Analysis or Respondent Profile (n=202)

Sex	Male 86 (43%)	Female 116 (57%)			
Academic Year	First year: 32 (16%)	Second year: 60 (30%)	Third year: 54 (27%)	Fourth year: 56 (27%)	
Major in Business College	Management 86 (43%)	Marketing 41 (20%)	Accounting 38 (19%)	Finance 22 (11%)	Human Resources 15 (7%)
The Emirate where the four universities are located	Dubai 29 (14%)	Sharjah 22 (68%)	Ajman 105 (52%)		

4.4 Evaluation of the Research Model

The reflective measurement model was evaluated and validated by considering the internal consistency (composite reliability), indictor reliability, convergent validity and discriminant validity (Hair Jr et al., 2014). A validity test was performed to determine the accuracy of the questionnaire used to obtain data from respondents. A reliability test was conducted to determine the reliability of the instruments used in this study. The validity of the questionnaire used in the study was tested using the Pearson correlation coefficient formula. The evaluation results are summarized in Tables 3, 4 and 5. Table 4 indicates that all constructs are consistent

since all of them meet the recommended threshold value for acceptable reliability; that is, the scores of composite reliability and Cronbach's α should be larger than 0.70. The indicator reliability is satisfactory since all factor loadings are above 0.7 and each indicator's variance is above 0.50. The convergent validity is satisfactory since the average variance extracted (AVE) value for each construct in Table 3 is no less than the recommended threshold value of 0.50. The discriminant validity is also satisfactory based on the fact that the square root of the AVE value for each construct is greater than the correlation of the construct with any other construct summarized in Table 5 and that each indicator loads highest on the construct it is associated with.

Table 3
Convergent Validity and Internal Consistency Reliability

Construct	No of Items	Loading Indicator	Composite Reliability	Cronbach's α	AVE
Teaching Challenges (TC)	5	0.815-0.687	0.723	.650	0.568
Assessment Challenges (AC)	4	0.851-0.893	0.933	.933	0.778
Communications Challenges (CC)	4	0.671-0.779	0.805	.803	0.509
Social Challenges (SC))	4	0.798-0.884	0.931	.929	0.773
Technical Challenges (TEC)	6	0.874-0.535	0.676	.690	0.525
Teachers' intention to learn online (ITL)	5	0.922-0.33	0.933	.799	0.586
Students' performance (SP)	6	0.688-0.797	0.837	.787	0.511

Table 4

Descriptive Statistics and Correlation Analyses

	TEACHING CHALLENGES (TC)	ASSESSMENT CHALLENGES (AC)	COMMUNICATION CHALLENGES (CC)	SOCIAL CHALLENGES (SC)	TECHNOLOGY CHALLENGES (TEC)	INTENTION TO LEARN (ITL)	STUDENTS' PERFORMANCE (SP)
TEACHING CHALLENGES (TC)	1						
ASSESSMENT CHALLENGES (AC)	-0.12	1					
COMMUNICATIONS CHALLENGES (CC)	-.314**	.180*	1				
SOCIAL CHALLENGES (SC)	-.277**	.890**	.210**	1			
TECHNOLOGY CHALLENGES (TEC)	.234**	-0.067	-0.052	0.039	1		
INTENTION TO LEARN (ITL)	-.256**	.862**	.326**	.841**	-0.057	1	
STUDENTS' PERFORMANCE (SP)	-.220**	.552**	.599**	.517**	-0.093	.661**	1
MEAN	4.07	3.45	2.09	3.66	4.29	2.89	2.36
SD	.425	1.02	.595	1.04	.376	.690	.584

Table 5
Hypotheses Development

Models	**Independent variables**	**Dependent variables**					
		TC	AC	CC	SC	TEC	ITL
Model 1	ITL	-.036	.710***	.100**	.187*	-.083**	
Model 2	SP						.433***

The correlation analysis shows the extent of the relationship and the direction of the relationship. In our analyses, the strongest positive correlation is seen between assessment challenges and social challenges, followed by intention to learn with assessment challenges and social challenges. The weakest correlation was observed between technological challenges and social challenges and communication challenges. The average mean of the items was 3.26, and the standard deviation was 0.676.

4.5 Path Analyses

Table 6 presents three types of effects: total, direct, and indirect. The total effect is the total impact variables have on other variables. The direct effect is the straight impact or linkage with one variable on another without any mediation, whereas the indirect effect occurs when one variable's effect occurs on another with the help of a mediator. According to Stage et al. (2004), path analysis is a popular method for social science analysis. In our analyses, the maximum total effect is observed for assessment challenges on ITL, whereas the least is witnessed for TC (teaching challenges) on ITL. The indirect effect of assessment challenges on student performance is the maximum, whereas TC and TEC have a negative indirect impact on SP, or student performance.

Table 6
Path Analyses

		Path Analyses					
		TC	AC	CC	SC	TEC	ITL
Total Effects	ITL	-.036	.710	.100	.187	-.083	.000
	SP	-.015	.307	.043	.081	-.036	.433
Direct Effects	ITL	-.036	.710	.100	.187	-.083	.000
	SP	.000	.000	.000	.000	.000	.433
Indirect Effects	ITL	.000	.000	.000	.000	.000	.000
	SP	-.015	.307	.043	.081	-.036	.000

4.6 Results of Hypotheses Development

The hypotheses were assessed using Smart PLS, while bootstrapping was used to assess the significance of the hypothesized paths and the amount of variance in the dependent variables attributed to the explanatory variables (Hair Jr et al., 2014). Interaction (SII), and 52% in collaborative learning (CL). According to Wetzels et al. (2009), these effect sizes are large.

Regression analysis is a tool used to measure the relationship between a dependent variable and one or more independent variables. In our analysis, we tested two models. In model 1, we tested 5 of our hypotheses, where we had one dependent variable, ITL (teachers' intention to learn online), and five independent variables, TC (teaching challenges), AC (assessment challenges), CC (communication challenges), SC (social challenges) and TEC (technical challenges). Hypothesis 1 tests the impact of teaching challenges on teachers' intention to learn online. The results indicate that TC negatively impacts ITL; however, the impact is not significant (β = -.036, $p > 0.05$, R^2 =.829). Hypothesis 2 tests the impact of AC on ITL, and the results are positively significant, indicating that there is a high positive impact of assessment challenges on teachers' intention to engage in online learning (β = .710, $p < 0.001$, R^2 =.829). Hypotheses 3 and 4 test the impact of CC and SC on ITL, respectively. The results indicate that there is a positive significant impact on ITL in the statistical terms CC to ITL (β = .100, $p < 0.01$, R^2 =.829) and SC to ITL (β = .187, $p < 0.05$, R^2 =.829). Finally, in model 1 and hypothesis 5, we tested the impact of TEC on ITL, and the result indicated that there was a significant negative impact of TEC on ITL (β = -.083, $p < 0.01$, R^2 =.829). In model 2, we measured the impact of ITL on student's performance, and the result indicates a positive significant impact of ITL on SP (β = .433, $p < 0.001$, R^2 =.187). Table 7 shows the summary of the hypothesis test**.**

Table 7

Summary Results of Hypotheses Development

Hypothesis	IV	Direction	DV	T-Statistic	P-value	Hypothesis Result
H1	TC	—·—·→	ITL	-1.033	.303	Rejected
H2	AC	—·—·→	ITL	9.965	.000	Accepted
H3	CC	—·—·→	ITL	3.202	.002	Accepted
H4	SC	—·—·→	ITL	2.520	.013	Accepted
H5	TEC	—·—·→	ITL	-2.724	.007	Accepted
H6	ITL	—·—·→	SP	6.788	.000	Accepted

Discussion, Contributions and Implications

5. Discussion

Moving smoothly from an environment of traditional education to distance and virtual learning could not happen overnight. This quick transformation is linked to various obstacles and challenges. The variables had a statistically significant effect on students' academic performance, with the exception of teaching challenges: the hypotheses to be developed in this study assumes that teaching challenges affect students' intention to learn online (H1). Assessment challenges affect students' intention to learn online (H2), communication challenges affect students' intention to learn online (H4), technical challenges affect students' intention to learn online (H5), and students' intention to learn online affects students' performance (H6). With regard to the assumption that teaching challenges have a positive effect on students' intention to learn online, the study's findings suggest that teaching challenges significantly and negatively affect students' performance learning ($\beta = -.036$, $p > 0.05$).

6. Contribution and Implication

This study offers several contributions that help extend our understanding of the different challenges that university students' face and that affect their intention to use online learning and their performance, specifically during the COVID-19 pandemic, in the context of the fast transformation from face-to-face on-campus learning to full online learning. This study focuses on business students in a few universities in the UAE.

First, this study has provided new empirical evidence and insights into the understandings and observations of the previous challenges that were further heightened due to the pandemic and that are urgent to respond to and resolve (such as e-assessment challenges and social challenges.) These challenges, intersected with traditional challenges such as technology, communications and teaching challenges were discussed from a variety of different cultural viewpoints in previous studies. Meeting the challenges are paramount due to the rapid technological transformation that is taking place post pandemic and the discussions around the adaptation and usage during the COVID-19 pandemic.

Second, this study revealed that teaching challenges (TCs) did not affect students' intentions to learn online or their performance. The possibility of why the result is negative could be the students' readiness, enthusiasm and willingness to fully adopt distance learning. For instance - Hung et al. (2010) agreed that learners' readiness to attend online courses is one of the major issues that learners face. Another understanding is considering the instructors' role in conducting lectures and the level of students' engagement in online classes. This understanding is consistent with Crawley et al. (2009). Moreland and Saleh (2007) stated that classroom

engagement includes interactions between faculty and students, students and students (teamwork, collaborations), and students and content beyond lectures. Another issue might be the instructor's teaching method, which needs to be modified to align with the online teaching approach and the changes that must take place each time the course is taught. Kebritchi et al. (2017), who found that instructors must make the necessary adjustments as they teach online courses to ensure the best experience for their students, reflected this issue. This result, consistent with Elzainy et al. (2020) at Saudi University who found that unfortunately, most of the students were unsatisfied with how some staff members practiced e-learning. However, the students are expecting skilled instructors to be able to face any challenges during the online sessions. Li et al., (2008) and Luyt (2013) agree that learners' expectations can be challenging and can also interfere with effectively teaching online courses. Furthermore, some learners may have unrealistic expectations, such as instant feedback on their online comments and assignments, or they may appear rude and demanding in their emails (Kebritchi et al., 2017).

Third, although assessment challenges and social challenges were not thoroughly tested meticulously during this study, it seems that the study provided a valuable understanding of how students' attitudes remained positive toward the e-assessment. Online learning is the only possible mode in which universities can use to assess students' learning objectives, performance and outcomes by instructors. Bandele et al. (2015) reported that students expressed a more positive attitude toward online exams. This finding is consistent with Liang and Creasy (2004), who stated that the assessment methods used in an online environment should reflect the nature of online learning that gives the learner more responsibility for his or her learning. Hassanien et al. (2013) found that students were highly satisfied and believed that the advantages outweighed the disadvantages. However, Rastgoo and Namvar (2010) found that e-assessments give instructors less control over the exam setting, which makes cheating easier for students. Rudland et al. (2011) agreed in their study that e-assessment offers flexibility and convenience to take exams anywhere and anytime; this, coupled with immediate feedback, was the most important benefit of this form. However, this can be viewed as potentially problematic, as it can present more opportunities for cheating.

7. Research Limitations and Future Research

This study has several limitations, some of which could provide avenues for future research. The results are based on and limited to UAE university undergraduate business students. It would be worthwhile to extend this work to university students in other countries. This study is quantitative and based on survey data to examine relationships between the study variables, and focuses on understanding the relationships among challenges, student online learning and academic performance. Future research could investigate the e-assessment issues and how they affect student academic performance since this study intended to gather preliminary data regarding the perspectives of students on e-assessment. Therefore, the data collected limited

the accurate analysis of cheating and plagiarism challenges. Second, the present study focuses on understanding the relationships among challenges, student online learning and academic performance. However, it neither focuses on specific challenges nor emphasizes academic perceptions of the different challenges.

8. Conclusion

This study tested the research model to understand the effect of the various challenges of teaching, technology, assessment, social and communication challenges on students' performance. Essentially, the current study suggests that teaching challenges do not affect students' academic performance due to students' online learning intentions. Modification of the teaching methodology to align with the online teaching approach will ensure progression in this area of online learning and should adapt to the changes each time a course is taught. Within the online learning and e-assessment field, it is essential to the professional development of instructors to improve their online teaching capabilities and skills. This can be accomplished through continuous training to increase students' intention to fully adopt online learning and thereby increase the motivation of the students and the online learning experience.

9. Recommendations

This study indicates that teaching challenges negatively affect the students' intentions to learn online, as well as their academic performance. The findings explore the challenges that students faced online while learning at several universities in the UAE. This led to the recommendation that current teaching methodologies need to be reviewed, in order for them to align with online systems and in the context of the COVID-19 pandemic. Training is highly recommended as well, as the academic staff will need to advance their professional qualifications and technical skills in order to keep up with rapidly advancing teaching tools and educational technology.

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