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Online Teaching Strategies of Language skills during Pandemic: A Case of Self-Efficacy of Teaching Faculty in Qatar Universities

Dr. Saba Al Qadhi^{a*} , Dr. Hessa H. Al-Thani^b , Dr. Mahmood Ahmed Hasan^c ,
Dr. Michael H. Romanowski^d , Dr. Xiangyun Du^e , Dr. Ahmed Al-Emadi^f 

a Assistant Professor, Core Curriculum Program College of Education, Qatar University.

b Assistant Professor of Educational Science College of Education, Qatar University

c Manager of Institutional Survey Research, Institutional Research and Analytic Department, Qatar University.

d Associate Professor Education Research Center College of Education, Qatar University.

e Professor Education Research Center Department of Planning, Aalborg University.

f Professor College of Education, Qatar University.

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Abstract

COVID-19 caused teaching to shifted online which emanated challenges for both teachers and students. To overcome such challenges, self-efficacy plays a vital role. The major objective of this study was to investigate the self-efficacy of teaching staff during the time of COVID-19. The population was a total of over 1100 the university instructors, out of which a sample of 212 (Female=62, Male= 150) participants was administered. The research data was collected through Likert scale after given a training of using various online teaching strategies with language skills for three days. The factors including in this scale were students' engagement, classroom management, and instructional strategies with 22 statements. Descriptive and Inferential statistics were assessed by using AMOS software. The findings of this research revealed that the respondents showed a high level of self-efficacy towards teaching during pandemic; and that online teaching was challenging for both pre-service teachers and experienced teachers. Further, there was a significant difference found among the demographic variables of the study regarding students' engagement, classroom management and instructional strategies with language skills. Further, the qualitative results revealed no significant difference about the demographic characteristics of the respondents regarding self-efficacy through online teaching. There was a significant difference found in mean score where female score was greater than male score. This research is expected to make a great contribution for the development of the self-efficacy of the teaching faculty for the successful completion of teaching-learning process through online teaching.

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Keywords: Teaching Strategies with language skills, Online Learning, University Teaching Staff, COVID-19.

* Corresponding Author.

Email:

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Introduction

During the COVID-19 pandemic, teaching was shifted online creating various challenges faced by students and teachers, the language barrier was one of them. Historically, the COVID-19 pandemic generated the most extensive interruption of education at all levels, impacting nearly 1.6 billion learners in more than 200 countries (Pokhrel & Chhetri, 2021). The pandemic caused extensive teaching and learning challenges in higher education by significantly disturbing traditional educational practices. Worldwide universities were forced to shift to online learning in an emergency fashion, converting their numerous face to face courses to online platforms. Qatar University was no different, with university leadership deciding to move all in-person courses to synchronous online learning, by enhancing language skills. Heider (2021) reported that Qatar University shifted to synchronous online learning in mid-March of 2020 using various platforms such as Blackboard Collaborate Ultra, WebEx, Microsoft Teams, and Zoom. Qatar University provided all faculty a three-day professional development program regarding how to implement synchronous online teaching enhancing language skills while students were provided with training how to receive instructions through online learning.

To overcome different issues such as disappointment, limitations, getting objectives, self-efficacy plays a vital role (Bandura, 1977). There are different attributes in online course delivery and face to face teaching (Corry & Stella, 2018; Rice, 2006), where challenges to teaching and learning have emerged because of abrupt and drastic change in pedagogy. These challenges covered a spectrum of teaching and learning issues. Right at the outset, language barrier was problematic in online teaching since language is vital to any communication process. Next, there was communication gap, lack of the use of technologies, wastage of time in the use of tools to conduct uninterrupted teaching; being unfamiliar with assessment strategies, and lack of preparedness of institutions and faculty for the transition (Bhagat & Kim, 2020; Sharma, Leung, Kingshott, Davecik, & Cardinali, 2020). In addition, there was also limited or inadequate access to technology (Rasheed, Kamsin, & Abdullah, 2020) and nonconductive home learning situation (Mogaji & Jain, 2020).

Several studies have examined how students dealt with these many challenges during the COVID-19 pandemic (Coman, Țiru, Meseșan-Schmitz, Stanciu, & Bularca, 2020), while other studies researched faculty perception about the shift to online learning during the pandemic (Mellieon & Robinson, 2021; Moralista & Oducado, 2020; Simamora, de Fretes, Purba, & Pasaribu, 2020).

Previous studies show that self-efficacy provides capabilities to handle the uncertain condition and make the successful completion of the organizational tasks (Klassen et al., 2009; Perrachione, Rosser, & Petersen, 2008; M. Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998). With the new online teaching requirements and approaches, teachers' self-efficacy has been dramatically affected (Pressley & Ha, 2021). Though a few studies have examined teachers' self-efficacy during COVID-19 (Cardullo, Wang, Burton, & Dong, 2021; Ma, Chutiyami, Zhang, & Nicoll, 2021; Pressley & Ha, 2021), there is still a lack of studies that examine teacher efficacy during the shift to online learning during a global pandemic in the Gulf Cooperation Council (GCC) countries.

This study aimed to describe university teachers' self-efficacy with language skills related to full-time online learning during the COVID-19 pandemic at Qatar University. Furthermore, the study aimed to determine if there were variations in self-efficacy regarding variables such as age, gender, teaching experience, enhancing language skills and online teaching experience.

Literature Review

Self-Efficacy and Teachers' Self-Efficacy

Various researches have been conducted to determine the language skills required in online teaching which revealed a serious incompetence of the teaching faculty (i.e. teachers' inability to use the Web or other computer-based applications and language barriers). Therefore, it is the requirement for teachers to enhance the language skills and adopt the innovative strategies and techniques through self-efficacy. Martin, Sass, and Schmitt (2012) posited that it is the requirement of the new era to create psycho-mechanism to cope up with the new challenges and changes. Thus, self-efficacy is the best tool to screen the positive and productive outcome according to the performance of specific organizational tasks so that they can succeed in each task they face (Bandura, 1977). Self-efficacy has been characterized as a significant mediator of behavior and, more significantly of change in behavior.

According to Bandura (2006), the theory of self-efficacy is composed of four primary variables that determine teacher self-efficacy, namely performance accomplishments or experience earned; vicarious experience; verbal persuasion; and psychological state of a teacher (Alqurashi, 2016; Tavakoli, Lotfi, & Biria, 2019). Wilde and Hsu (2019) suggest that self-efficacy can be general or specific, enabling individuals to have a broad spectrum of self-efficacy beliefs about themselves at any one given time. Self-efficacy beliefs influence how individuals think and motivate themselves. Bandura (1977) suggests that individuals with a strong self-efficacy believe in their capability and view new tasks as challenges to overcome rather than a threat. Those with a weak sense of self-efficacy possess significant doubts about their abilities.

Self-efficacy of teaching staff targets capabilities of individuals to perform various professional activities for getting to set objectives such as Language skills, students' achievement and motivation. Self-efficacy is conceptualized as a teachers' discernment of their ability in the teaching profession to shape students' knowledge, values, and behavior (M. Tschannen-Moran & Hoy, 2001; M. Tschannen-Moran et al., 1998). Based on the seminal work of Bandura (1982), teacher self-efficacy has been associated with a set of elements that influence their professional capacity and belief to administer tasks, obligations, and challenges (Benitez, 2020). For example, high efficacy teachers tend to use new teaching methods, seek developed teaching techniques, and use updated teaching materials (Stein & Wang, 1988). Teacher's self-efficacy has empirically been associated with a wide range of beliefs regarding their capacity to teach and positively impact student learning in a classroom environment (Rodríguez et al., 2014). M. Tschannen-Moran et al. (1998) reported that teachers possessing a high level of efficacy thought they could control or strongly influence student achievement and motivation.

Horvitz, Beach, Anderson, and Xia (2015) report that teachers' self-efficacy is important because higher teaching self-efficacy is more likely to persevere through adverse outcome expectations and experiences. The shift to online teaching demanded changes in teachers' instructional approaches and new skill sets. Many teachers faced adversity in many aspects of their teaching that influenced their self-efficacy. In addition, self-efficacy is context-specific which means that a teacher's self-efficacy depends on the number and composition of students (Guo, Justice, Sawyer, & Tompkins, 2011). The shift to online instruction will influence teachers' self-efficacy in this context. Therefore, it is essential to investigate the teachers capabilities through self-efficacy (M. Tschannen-Moran et al., 1998).

Student Engagement, Instructional Strategies and Classroom Management

Appleton, Christenson, and Furlong (2008) conclude that a teacher's self-efficacy influences student engagement which is a critical requirement for learning and a source of positive educational benefits to all students. M. Tschannen-Moran et al. (1998) report that teachers with a higher self-efficacy can create increased student engagement within the classroom. The findings of the previous researches have also revealed a positive linkage between students' engagement and self-efficacy of academicians (Ross, Cousins, & Gadalla, 1996). Teachers with high instructional skills are therefore able to engage students in various classroom activities (Chao, Sze, Chow, Forlin, & Ho, 2017; Shoulders & Krei, 2015).

Self-efficacy has a significant impact on instructional skills and behavior of teachers Holzberger, Philipp, and Kunter (2013) observe that self-efficacy enhances instructional skills due to which teachers are able to help students complete specific tasks during learning process (Deemer, 2004). The activity based learning enhances the ability to make the effective plans to organize the learning process (Allinder, 1994; Enochs, Scharmann, & Riggs, 1995). Suprayogi, Valcke, and Godwin (2017) posits that self-efficacy makes employees more constructive to adopt various techniques according to the situation (Pressley, Roehrig, & Turner, 2018; Megan Tschannen-Moran & Hoy, 2007).

M. Tschannen-Moran et al. (1998) find that online teaching provides new perception in classroom management which helps teachers manage their classes on the online platform, provided they have the required competencies and prior training and exposure (Lathifah, Helmanto, & Maryani, 2020). The teachers should know how to provide online instructional material to students before each lesson, how to upload various secondary material related to courses, and how to upload micro-videos required to enhance explanations, among other tasks (Xie & Yang, 2020). Such tasks or online related competence is what determines teachers' self-efficacy.

Online Teaching strategies and language barrier

The COVID-19 pandemic has profoundly changed our lives and professional practices. It was a time when educational institutions across the world were forced to close down or switch over to technical educational platforms. Online learning became integrated into learners' daily lives due to the flexibility in scheduling and location that it offered. Language teachers and learners were also compelled to teach and learn languages online on a global scale. They faced common language barriers in online teaching such as use of jargon or technical language, lack of social communication, working with different dialects within the same language, trying to understand heavily worded documents, and unclear instructions. However, in many cases, the online learners often have no communication with one another or their instructors, making it difficult to determine how the learners are reading the materials and whether they are learning effectively. Furthermore, online learning also posed challenges to those who faced language barriers or were under time pressure.

University Instructors' Self-Efficacy and Online Instruction

When adopting online teaching, university teachers have been associated with negative attitudes and lower levels of self-confidence (Shahzad & Naureen, 2017). Existing research suggests a link between teachers' self-efficacy and online teaching (Corry & Stella, 2018; Hodges, Gale, & Meng, 2016). Several studies have examined university instructors' teaching self-efficacy relating to their Internet use and online instruction. Presno (1998) reported that low self-efficacy played a role in teacher anxiety related to internet

use in teaching. The lower sense of efficacy among university teachers regarding online teaching has been associated with the inability to comprehend technological aspects in teaching students. It requires them to develop technical skills (Darling-Hammond, Flook, Cook-Harvey, Barron, & Osher, 2020).

Prior teaching experience with online teaching is positively related to teachers' self-efficacy and attitude toward online learning (Scherer, Howard, Tondeur, & Siddiq, 2021). Moreover, while teaching skills have a strong engagement with self-efficacy (Robinia & Anderson, 2010), professional experience too demonstrates a higher self-efficacy in online teaching (Lee & Tsai, 2010). It has been reported that teachers with more online experience have higher self-confidence. Experienced online teachers demonstrate higher self-confidence in their pedagogical competencies to teach online (Muñoz Carril, González Sanmamed, & Hernández Sellés, 2013). Shea (2007) reports that prior experience is vital for teachers' motivation and persistence with online teaching, and more experience is associated with higher self-efficacy.

Regarding the constructs of university instructors, gender, and online instruction, Horvitz et al. (2015) found that gender was a predictor of self-efficacy in online instructional strategies at university level. It revealed a strong professional competencies of females as compare to males to conduct online teaching with full self-efficacy (Chang, Lin, & Song, 2011; Shea, 2007). Gorder (2008) found that gender demonstrated no difference in the perception of the use of technology, while other studies did not identify any gender differences in constructs related to online readiness (Schmid, Brianza, & Petko, 2021; So & Swatman, 2010).

In summary, as universities shifted from face-to-face teaching to online instruction, teachers were faced with challenges and the development of new skills to ensure there was the least disruption in the quality of teaching and learning. Teachers with low self-efficacy most likely lack the confidence in their ability to move their teaching online and suddenly feel deskilled when transitioning to online teaching. This can lead to frustration with technological and pedagogical challenges that influence learning (Dicke et al., 2014; Scherer et al., 2021). Nevertheless, it is essential to understand university instructors' perceptions of self-efficacy for online teaching and the multiple characteristics that influence their self-efficacy.

While many universities have been through emergent changes of moving from full-time face-to-face to online teaching, either full scale or in a blended mode, there is an urgent need to understand how university teachers have the efficacy of online teaching due to COVID 19. To address such a need, the current study investigated university teachers' self-efficacy in online teaching in a state university in Qatar in response to the university policy of change to full-scale online teaching. More specifically, the study was guided by the following questions:

1. How do university instructors perceive their self-efficacy for online teaching in the pandemic?
2. How do self-reported self-efficacy for online teaching vary by age, gender and teaching experiences?
3. What challenges did university instructors encounter regarding their self-efficacy for online teaching in pandemic time?

Research Methodology

• Research Design

This study was designed as a survey cum interview based mixed method research utilizing both quantitative and qualitative data. The quantitative data was collected through a questionnaire to investigate teachers' self-reported efficacy of online teaching. Although our literature review study had identified a few studies with teaching efficacy scales, only one of them emphasized university teachers' self-efficacy perceptions of online teaching (Robinia & Anderson, 2010). The study also took the shape of a self-reported study with the help of open ended questions interviews with the participants of the study. This provided the qualitative data which comprised mainly participants' perception about the challenges they had encountered through the transition to full-scale online teaching. Two hundred three instructors among the 212 participants provided their responses to the open ended questions.

The study took place in the leading state-run university in Qatar, which made the transition to full-scale online teaching within a few days during spring 2020. All instructors were provided a 3-day emergent training to use different online teaching platforms for synchronous online teaching, including Blackboard Collaborate, Microsoft Teams, and WebEx. In such an emergent change, the transition meant that instructors played an essential role in getting themselves ready and supporting students to go through such a transition. For such, teachers' self-efficacy of online teaching plays an essential role.

• Instrument and Data Collection Methods

In this study, a 32-item Michigan Nurse Educators Sense of Efficacy for online Teaching (MNESelf-efficacyOT) instrument was developed to measure online teaching efficacy through a web-based survey. The development of the MNESelf-efficacyOT survey was inspired by Tschannen Moran's 24-item measure of self-efficacy (Teachers' Sense of Efficacy Scale -TSelf-efficacyS) (2001), which was derived from Bandura's efficacy theory. In addition to three constructs of the TSelf-efficacyS measure - Student Engagement, Classroom

Management, and Instructional Strategies, one additional construct with eight items of computer-related skills was added to the MNESelf-efficacyOT measure. Considering the differences in demands for computer skills and online teaching related to technology skills, we chose to leave out the construct of computer skills in the current study.

Both measures were tested with high reliability of Cronbach's alpha with 0.94 for TSelf-efficacyS and 0.93 for MNESelf-efficacyOT in total and equally high for sub-scales. Moreover, factor loading of the scale was also administered. Finally, three constructs were selected for the experimentation of the current study, namely Efficacy in Student Engagement (ESE), Efficacy in Classroom Management (ECM), and Efficacy in Instructional Strategies (EIS).

A measure of 24 items from three constructs of MNESelf-efficacyOT was adopted and revised as the significant data collection tool in this study. Two items were removed after the discussion among the research team and in the process of content validation, which is respectively, "How much can you do to improve the understanding of a student who is failing in an online class?" and "How well can you provide appropriate challenges for competent students in an online environment?" The main reasons are irrelevance to the current research context. It was impossible to identify students' performance levels in an online teaching mode due to the emergency shift to the online line. For the same reason, two additional items were modified from the original expression. These two items were "How much can you do to get through to disengage students in an online class?" changed to "How much can you do to get through to students in an online class?" and "How well can you respond to difficult questions from online students?" changed to "How well can you respond to questions from online students?"

The remaining 22 items from the revised MNESelf-efficacyOT questionnaire were translated into Arabic to support participants in reporting their perceptions in both languages. The questionnaire was translated back to the English version to ensure the accuracy of language use. Language experts from the Qatar university were invited to review the translated version, who suggested minor revisions for three items. In addition, experts from educational research department and quantitative studies were invited to validate the questionnaire contents. Based on their suggestions, minor modifications were made to make the Arabic statements fit the local context. Two instructors were invited for piloting the instrument, who suggested no changes. The questionnaire items were graded on a 9-point frequency rating scale ranging from (1) "nothing" to (9) "a lot." A total of 260 respondents (24% of the targeted population) returned the questionnaire, out of which 212 were complete and they were used for analysis.

- *Sampling and Procedure*

To explore the research questions formulated in this study, instructors from Qatar university were invited to participate in. After receiving the study's ethical approval, the human resource department was contacted, who informed that there were approximately 1100 instructors involved in teaching tasks in 12 constituent colleges, which served the population of the study. Due to the university administrative procedure protocols, we could not access all these instructors directly by email. In early August 2020, emails were sent with online survey links to the Deans' offices of all 12 colleges to invite instructors for voluntary participation. Two email reminders were sent during the following month, and until the end of August 2020, 212 responses were received. Among them, 150 were Male, and 62 were Female from a spectrum of academic disciplines. Table 1 reports the demographic information of the participants.

Table 1: *Participant information*

Characteristic	Levels	No.	Percent
Gender	Male	150	70.8%
	Female	62	29.2%
	Total	212	100.0%
Age	Less than 40	51	24.1%
	Above 40	161	75.9%
	Total	212	100.0%
Teaching Experience	Less than ten years	46	21.7%
	More than ten years	166	78.3%
	Total	212	100.0%
Online Teaching Experience	Less than 3 years	177	83.5%
	More than three years	35	16.5%
	Total	212	100.0%

- *Data Analysis*

To assess the validity, SPSS was administered by exploratory factor analysis whereas, confirmative factor analysis was analyzed by AMOS. The correlation among the variables was also assessed. Additionally, Kaiser-Meyer-Olkin's and Bartlett's test were applied to assume the research data suitability (Tobias & Carlson, 1969). Cronbach Alpha was tested to determine the composite reliability of all dimensions of the scale.

Results and Discussion

i. Survey Validity

SPSS software was administered to analyze the exploratory factor analysis (EFA) while confirmative factor analysis (CFA) was analyzed by AMOS. Additionally, Kaiser-Meyer-Olkin's and Bartlett's test were applied to assume the research data suitability (Tobias & Carlson, 1969). All (22) statements were assessed through Varimax rotation method. Two stages of EFA were operated. In the first step, the results for commonalities of each item was extracted, and items having extraction less than 0.5 were dropped. These dropped items included one item (ESE1) from the questionnaire of efficacy in student engagement, one item (EIS5) from the questionnaire of effectiveness in instructional strategies, and one item (ECM8) from the questionnaire of efficacy in class management. These items had values less than the targeted value (0.5). In the second step, exploratory factor analysis was conducted once again after dropping the three items, whose results are shown in tables 2, 3, and 4.

Table 2 illustrates that Kaiser-Meyer-Olkin's measure of sampling adequacy test is 0.934, and Bartlett's Test of Sphericity is significant, $\chi^2 = 2869.40$, $p < .000$, which means that the core factors would very well predict the items. The considerable level of Bartlett's test of sphericity being 0.000 also indicates that the data are suitable for factor analysis (Tobias & Carlson, 1969).

Table 2: KMO and Bartlett's test

Kaiser Meyer Olkin - Measure of Sampling Adequacy.		0.934
Bartlett's Test of Sphericity	Approx. Chi-Square	2869.40
	df	231
	Sig.	0.000

As shown in Table 3, three factors were extracted with a total initial eigenvalue > 1 and a total variance of 61.2%, with a total of 62.2% of data explaining the variance of teaching self-efficacy. Based on EFA, seven items for efficacy in class management which accounted for 25.08% of the variance, six items for efficacy in instructional strategies (accounted for 18.77% of the variance), and six items for effectiveness in student engagement, (accounted for 17.27% of the variance) were loaded with values > 0.6 as shown in Table 4 and were qualified for measuring teaching self-efficacy.

As mentioned earlier, three items were dropped from the EFA process, including "How well can you respond to defiant students in an online setting?" (ECM 8), "How much can you do to help your students think critically in an online class?" (ESE1), and "How much can you do to use a variety of assessment strategies for an online course?" (EIS5).

Table 3: Extraction method: principal component analysis for online teaching self-efficacy

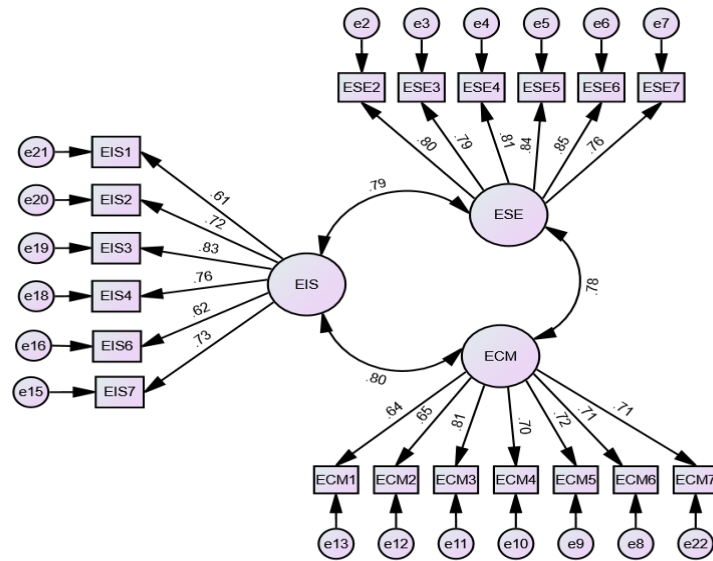
Component	Initial Eigenvalues			Extraction-Sums of Squared-Loadings			Rotation-Sums of Squared-Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	10.5	47.56	47.56	10.5	47.56	47.56	5.52	25.08	25.08
2	1.62	7.36	54.92	1.62	7.36	54.92	4.13	18.77	43.85
3	1.37	6.21	61.12	1.37	6.21	61.12	3.8	17.27	61.12

Note: ECM: Efficacy in Classroom Management; EIS: Efficacy in Instructional Strategies; ESE: Efficacy in Student Engagement.

Table 4: Reports results of rotated factor matrix for teaching self-efficacy and Its Items Outer Factor Loading (1st Phase)

	ECM	EIS	ESE
ECM1	0.625		
ECM2	0.790		
ECM3	0.704		
ECM4	0.729		
ECM5	0.717		
ECM6	0.718		
ECM7	0.649		
EIS1		0.619	
EIS2		0.720	
EIS3		0.820	
EIS4		0.767	
EIS6		0.614	
EIS7		0.736	
ESE2			0.806
ESE3			0.785
ESE4			0.813
ESE5			0.839
ESE6			0.845
ESE7			0.760

Confirmatory factor analysis was conducted on the remaining 19 items using AMOS Program 27. According to the results reported in Figure 1, the factor loadings for all items were significant and exceeded the suggested cut-off level of 0.6 (Alyafei & Alshaima, 2020).



Note: **ECM**: Efficacy in Classroom Management; **EIS**: Efficacy in Instructional Strategies; **ESE**: Efficacy in Student Engagement.

Figure 1. Factor loading based on CFA using AMOS 27.

Average Variance Extracted (AVE) was also calculated for each domain, the value of each was higher than 0.5 (AVE for ESE= 0.65, AVE for EIS=0.51 and AVE for ESM=0.65). It means that CFA and AVE showed the acceptable validity of the scale to measure the respondents' self-efficacy.

ii. Survey Reliability

Table 5 shows that each item in the scale has a sufficient reliability, which is greater than 0.7. After administering Cronbach Alpha, the results of composite reliability were also shown more than 0.8, being an acceptable value of all dimensions of the scale.

Table 5: Reliability Statistics of the survey (Cronbach Alpha Coefficient)

Factors	Item numbers	Cronbach's Alpha	Composite Reliability (CR)
ESE	6	0.916	0.96
EIS	6	0.860	0.92
ECM	7	0.872	0.87
Total	19	0.94	0.88

iii. Descriptive and Inferential Statistics Results

To address how instructors perceived their online teaching self-efficacy, descriptive statistics, and a one-sample- t-test was calculated. The one-sample t-test was used to compare the mean of each domain of SR with the midpoint of the scale (5 out of 9) to allow us to know if the SE was higher or lower than the midpoint with calculating effect size using Cohen's d method. Table 6 presents descriptive statistics of the participants' mean scores on the overall and the three dimensions of self-efficacy for online teaching (Self-efficacyOT) in the pandemic time, including the results of a one-sample t-test with Cohen's d effect size (d). The mean was interpreted according to the following criteria: Very low (1- 2.59), Low (2.60- 4.19), Middle (4.20- 5.79), High (5.80- 7.39), Very high (7.40 -9).

Following this, Table 6 shows the participants' mean score on the overall Self-efficacyOT corresponds to the high level with a statistically significant and high level of effect size (M = 7.06, SD = 1.102, t =16.632, p=0.000, d=1.142). Participants' mean score corresponds to the high level of Student Engagement domain with statistically significant and moderate effect size (M = 6.74, SD = 1.358, t =10.099, p=0.000, d=0.694). For Instructional Strategies domain, the participants' mean score is significantly higher than the midpoint with high-level effect size (M = 7.39, SD = 1.079, t=21.432, p= 0.00, d= 1.472). Similarly, or the Classroom Management, the participants' mean score is significantly higher than the midpoint with high effect size (M = 7.05, SD = 1.246, t= 14.596, p=0.000. d=1.002) domains are within the high levels of Self-efficacyOT.

Table 6. Descriptive statistics and one sample t-test for overall and three dimensions of self-efficacy for online teaching

	One-Sample Statistics			t	Test Value (midpoint)= 5		Interpreted Mean	
	n=212, df=211	Mean	Std. Deviation		Std. Error Mean	Sig. (2-tailed)		Effect size (d)
Student Engagement (SE)		6.74	1.358	0.093	10.099	0.000	0.694	High
Instructional Strategies (IS)		7.39	1.079	0.074	21.432	0.000	1.472	High
Classroom Management(CM)		7.05	1.246	0.085	14.596	0.000	1.002	High
Overall		7.06	1.102	0.075	16.632	0.000	1.142	High

Table 6 also presents that the Instructional Strategies domain has the highest score with the most significant effect size, followed by the Classroom Management domain. The Student Engagement (SE) domain has the lowest mean score compared to the others two fields. For more details about the Self-efficacy for online teaching in the pandemic time, the same analysis was conducted for the last part by domain items. The items were sorted from the highest mean scores to the lowest for each dimension (see Appendix 1). Although participants reported high means scores on all three factors of the survey, further analysis through paired samples test reported significant differences between the three factors as ranked by EIS > ECM > ESE, as illustrated in Table 7.

Table 7: Paired sample test results comparing the three factors

	Descriptive statistics				Paired Samples Test		
	Mean	N	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)
ESE	6.7421	212	1.35830	.09329	-9.801	211.000	0.000
EIS	7.3884	212	1.07908	.07411			
ESE	6.7421	212	1.35830	.09329	-4.358	211.000	0.000
ECM	7.0495	212	1.24646	.08561			
EIS	7.3884	212	1.07908	.07411	5.403	211.000	0.000
ECM	7.0495	212	1.24646	.08561			

iv. Results by Demographical Factors

Before running the statistical parametric test, it was essential to explore the data to check its assumptions through (1) Normality of the observed variables for each group using Kolmogorov-Smirnov and Shapiro-Wilk tests. (2) and to what extent the groups' variance is equal (homogeneity of Variance). The group's Kolmogorov-Smirnov and Shapiro-Wilk test shows that most data for each group was not normally distributed (most of sig. <0.05) (Table 8). Similarly, the Levene Statistic Tests of Homogeneities (Table 9) shows that the variances within groups are not equal for the total of online teaching efficacy and its three domains.

Table 8: Test of normality for all domains by demographic variables

		Kolmogorov-Smirnov ^a			Shapiro-Wilk				
		Statistic	df	Sig.	Statistic	df	Sig.		
Gender	ESE	Male	0.106	150	0.000	0.960	150	0.000	Not achieved
	ESE	Female	0.146	62	0.002	0.947	62	0.009	Not achieved
EIS	Male	0.103	150	0.000	0.952	150	0.000	Not achieved	
	Female	0.128	62	0.013	0.960	62	0.040	Achieved	
ECM	Male	0.088	150	0.007	0.954	150	0.000	Not achieved	
	Female	0.074	62	.200*	0.965	62	0.078	Achieved	
Total	Male	0.079	150	0.022	0.963	150	0.000	Not achieved	
	Female	0.101	62	0.189	0.975	62	0.231	Achieved	
Age	ESE	Less than 40	0.140	51	0.014	0.942	51	0.014	Not achieved
		Above 40	0.087	161	0.005	0.964	161	0.000	Not achieved
	EIS	Less than 40	0.114	51	0.098	0.942	51	0.015	Not achieved
		Above 40	0.083	161	0.009	0.952	161	0.000	Not achieved
	ECM	Less than 40	0.109	51	0.182	0.952	51	0.037	Not achieved
		Above 40	0.083	161	0.009	0.951	161	0.000	Not achieved
	Total	Less than 40	0.078	51	.200*	0.965	51	0.139	Achieved
		Above 40	0.074	161	0.033	0.963	161	0.000	Not achieved

		Kolmogorov-Smirnov ^a			Shapiro-Wilk			
		Statistic	df	Sig.	Statistic	df	Sig.	
Teaching Experience								
ESE	Less than 10 years	0.186	46	0.000	0.942	46	0.024	Not achieved
	More than ten years	0.075	166	0.024	0.961	166	0.000	Not achieved
EIS	Less than 10 years	0.106	46	.200*	0.967	46	0.214	Achieved
	More than 10 years	0.094	166	0.001	0.953	166	0.000	Not achieved
ECM	Less than 10 years	0.135	46	0.035	0.924	46	0.005	Not achieved
	More than 10 years	0.089	166	0.003	0.955	166	0.000	Not achieved
Total	Less than 10 years	0.132	46	0.043	0.945	46	0.030	Not achieved
	More than 10 years	0.060	166	.200*	0.966	166	0.000	Not achieved
Online Teaching Experience								
ESE	Less than 3 years	0.092	177	0.001	0.967	177	0.000	Not achieved
	More than 3 years	0.114	35	.200*	0.916	35	0.011	Not achieved
EIS	Less than 3 years	0.085	177	0.003	0.956	177	0.000	Not achieved
	More than 3 years	0.118	35	.200*	0.908	35	0.007	Not achieved
ECM	Less than 3 years	0.088	177	0.002	0.958	177	0.000	Not achieved
	More than 3 years	0.135	35	0.107	0.919	35	0.013	Not achieved
Total	Less than 3 years	0.070	177	0.036	0.968	177	0.000	Not achieved
	More than 3 years	0.115	35	.200*	0.923	35	0.018	Not achieved

Table 9: Tests of homogeneity of variances

	Levene Statistic	df1	df2	Sig.
Tests of Homogeneity of Variances between Gender group				
ESE	1.222	1	210	0.270
EIS	2.065	1	210	0.152
ECM	8.586	1	210	0.004
Total	5.689	1	210	0.018
Tests of Homogeneity of Variances based on Age group				
ESE	0.006	1	210	0.937
EIS	0.134	1	210	0.715
ECM	1.922	1	210	0.167
Total	0.109	1	210	0.742
Tests of Homogeneity of Variances based on teaching experience				
ESE	0.668	1	210	0.415
EIS	3.943	1	210	0.048
ECM	3.702	1	210	0.056
Total	3.895	1	210	0.050
Tests of Homogeneity of Variances based on online teaching experience				
ESE	0.041	1	210	0.840
EIS	0.079	1	210	0.779
ECM	0.014	1	210	0.907
Total	0.131	1	210	0.71the 7

Since normality of the observation variable and the equal variance between groups are not represented in most of the data (Table 8 and the non-parametric test), "Mann-Whitney" was used to compare the difference between any two groups instead of the t-test.

Following these results, Mann-Whitney Test was conducted to explore factors of gender, age, and teaching experiences. The results revealed no significant differences regarding age and teaching experiences. In terms of the total self-efficacy on online teaching, results show a Mean Rank for age group less than 40 = 114.57, Mean Rank for the age group above 40 =103.94 (U=3694.000, p=.0.281). For the ESE domain, Mean Rank for the age group less than 40 =115.43, Mean Rank for the age group above 40 =103.67 (U=3650.000, p=0.232). For the EIS domain, Mean Rank for age group less than 40 =115.20, Mean Rank for the age group above 40 =103.75 (U=3662.000, p=0.245) and the ECM domain, Mean Rank for age group less than 40=113.47, Mean Rank for the age group above 40 =104.29 (U=3750.000, p=0.281).

Regarding the total self-efficacy on online teaching, Mean Rank for teaching experience group less than ten years = 113.14, mean rank for teaching experience group more than ten years =104.66 (U=3512.500, p=0.407). For the ESE domain, Mean Rank for teaching experience group less than ten years =111.14, Mean Rank for teaching experience group more than ten years =105.21 (U=3604.500, p=0.561. For the EIS domain, the Mean Rank for the teaching experience group less than ten years =117.47, Mean Rank for the teaching experience group more than ten years =103.46 (U=3313.500, p=0.170). For the ECM domain, Mean Rank for teaching experience group less than ten years =110.88, Mean Rank for teaching experience group more than ten years =105.29 (U=3616.500, p=0.584).

Table 10 reports a significant difference between females and males in the total self-efficacy on online teaching ($U= 3642, p=0.013<0.05$). Females show a higher self-efficacy on online teaching than males, the Mean Rank of females = 122.76, and the Mean Rank of males is 99.78. For ESE, there is a significant difference between females and males in the total self-efficacy on online teaching ($U= 3396., p=0.002<0.05$). Females have higher self-efficacy on online teaching than males, the Mean Rank of females = 126.73 and the Mean Rank of males =98.14. For EIS and ECM, there are no significant differences between males and females ($p >0.05$).

Table 10: *Mann-Whitney test to compare the differences between males and females on the self-efficacy of online teaching*

ESE	Male	150	98.14	14721.0	3396	-3.090	0.002
	Female	62	126.73	7857.0			
EIS	Male	150	101.45	15217.0	3892	-1.868	0.062
	Female	62	118.73	7361.0			
ECM	Male	150	101.22	15183.0	3858	-1.951	0.051
	Female	62	119.27	7395.0			
Total	Male	150	99.78	14967.0	3642	-2.481	0.013
	Female	62	122.76	7611.0			

Qualitative data was analyzed via a bottom-up thematic approach, revealing four major challenges reported by the participants. Three major challenges could be summarized. First, the most reported challenge by 143 (among the 203) participating instructors was student engagement, which was related to having no direct interaction with the students in a synchronized online environment. Participants expressed their difficulty finding out whether students were following the lectures due to the policy and culture that students could not be forced to turn on their cameras. It was challenging to interact with students without "being able to know their presence online." As one participant wrote, "One can't judge whether students are interested and motivated or not. They say yes, but when asked questions, the results reflect something else." Several participants expressed their frustrations in online teaching due to lack of contact with students, neither expecting them to respond to the instructors' questions nor involving them to discuss with each other. As one wrote, "Nothing, I could do in this situation when I cannot see them."

Second, the technology facility was another well-reported challenge. Thirty-eight participants reported their experiences of problems of platform breakdown at the initial stage of the emergent change and poor network connections from student sides related to their home study conditions. According to several participants, these restrictions and constraints added to the difficulty of organizing classroom management and made it more challenging to engage students in classroom interactions.

Following the challenges mentioned above, around thirty participants reported their stress and the extra workload during such an emergent change. The feelings of uncertainty and anxiety impacted their confidence in how well and successfully they could manage the online teaching in their ideal ways.

Conclusion

The current study explored university instructors' self-reported self-efficacy for online teaching in the context of the COVID pandemic in response to university policy of emergent transition to full-scale online teaching in Qatar. An adapted version of 22-item web-based questionnaire was administrated in the current study for empirical data with the participation of 212 university instructors across various disciplines, which was derived from the 32-item Michigan Nurse Educators Sense of Efficacy for online Teaching (MNESelf-efficacyOT) instrument (Robinia & Anderson, 2010) and the Tschannen Moran's 24-item measure of self-efficacy (Teachers' Sense of Efficacy Scale -TSelf-efficacyS) (2001), both originating from Bandura's efficacy theory.

The findings of this research revealed that the respondents showed a high level of self-efficacy towards teaching during pandemic and language barriers. Further, there was significant different found among the demographic variables of the study regarding students' engagement, classroom management and instructional strategies (Dolighan & Owen, 2021; Horvitz et al., 2015; Robinia & Anderson, 2010). Moreover, the findings of the qualitative data which was collected by open-ended questions showed no significant difference about the demographic construct of the participants regarding self-efficacy in online teaching. The effectiveness of online instruction is measured by the level of interaction, how well it satisfies the students' needs, and how it eliminates communication barriers between the involved participants (Infurna, 2016). There was a significant different found in mean score where female score was greater than male score. While the identified gender difference is in line with results from some previous studies in a K12 context (Halford, 2003; Horvitz et al., 2015; Shaukat, 2011), Robinia and Anderson's (2010) study in a higher education context, which the instrument was adapted from, found no gender differences.

The overall result is in line with recent qualitative research outcomes in the same institution, in that university instructors struggle in challenges of uncertainty feelings due to the emergent change to online teaching with the limited resources, including a short time of training and facilities. While all instructors managed their teaching tasks, engaging students in online interactions was challenging due to camera-related issues and other culture and policy related issues. These results also contribute to the overall inconclusiveness of the field regarding whether demographic data such as previous experiences and gender play a role in online teaching efficacy with language skills which may be related to different research contexts, for example, in K12 or higher education, in a pre-pandemic or during pandemic emergency context. This inconclusiveness indicates that more research is needed regarding gender variables and potential reasons for the future.

The results of the study have practical implications. First, the study revealed the importance of teacher efficacy. It indicated that university teachers should obtain self-awareness about their teaching efficacy in general and specifically in an online mode context, which will help them further improve their teaching practices. Second, the results suggest that university instructors may be further supported by sustaining their teaching efficacy. Specifically, when online teaching may be a part of a long-term teaching mode in post-pandemic time, their online teaching efficacy may deserve further attention, particularly regarding engaging student learning online. For example, university professional development activities shall focus on the knowledge and skills and support the university teachers' efficacy and other mental health aspects. Finally, results of the study suggest that while the emergency training was helpful for the participants' self-reported self-efficacy, the concerns raised by them, as revealed from the qualitative data of the study, suggest a need to provide institutional support to the instructors, including flexible work schedules and balanced workload, and to provide urgency and systematic training to students as well. Additionally, the study supplements the teacher efficacy theory that has been carried out in a Western context and provides empirical support from an Arabian context, in concrete, in a higher educational setting in Qatar. Results of the study are useful for instructors to effectively understand how to better support university instructors' teaching efficacy with language skills in general, and in particular, in an online mode. The present adapted survey can be used as a basis for future explorations in this research area.

The study has a few limitations that indicate a need for future research perspectives. First, the study mainly relied on quantitative data from a web-based self-reported questionnaire. While interesting patterns were revealed from the results, interpretation and explanations demand further qualitative studies such as interviews to gain in-depth insights into the reasons behind the participants' choices. Second, while the study provided a picture of the online self-efficacy of university teachers, future studies shall explore insights of other important groups such as students.

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Appendix 1

The table reports details of descriptive statistical analysis and one sample T-test for the three dimensions of Self-efficacyOT by item. The items were sorted from the highest mean scores to the lowest for each dimension.

<i>Descriptive statistics and one sample T-test for the three dimensions of Self-efficacyOT per item.</i>							
One-Sample Statistics				Test Value = 5			Interpreted mean
n=212, df=211	Mean	S.D	T	Sig.	Effect size Cohen's d		
Student Engagement (S.E.)							
ESE4	How much can you do to get students to believe that they can do well in an online class	7.05	1.503	12.130	0.000	0.833	High
ESE 2	How much can you do to get through to students in an online class?	6.90	1.465	10.941	0.000	0.751	High
ESE 5	How much can you do to help students' value online learning?	6.83	1.528	9.773	0.000	0.671	High
ESE 7	How well can you facilitate collaborative learning online?	6.73	1.736	7.811	0.000	0.536	High
ESE 6	How much can you do to foster individual student creativity in an online course?	6.72	1.604	8.323	0.000	0.572	High
ESE 3	How much can you do to motivate students who show low interest in online work?	6.23	1.846	3.363	0.001	0.231	High
Instructional Strategies							
EIS1	How well can you respond to questions from online students?	8.21	1.038	33.829	0.000	2.323	Very high
EIS6	To what extent can you provide an alternative explanation or example when students in an online class seem to be confused?	7.76	1.240	23.071	0.000	1.585	Very high
EIS3	How well can you craft questions or assignments that require students to think by relating ideas to previous knowledge and experience?	7.43	1.421	16.696	0.000	1.147	Very high
EIS7	How well can we provide good online learning experiences for students?	7.18	1.472	13.643	0.000	0.937	High
EIS4	How much can you do to make your online meet learning styles?	6.98	1.611	10.672	0.000	0.733	High
EIS2	How much can you do to gauge student comprehension of what you have taught in an online mode?	6.76	1.585	8.856	0.000	0.608	High
Classroom Management							
ECM5	How much can you do to control students dominating online discussions?	7.24	1.734	12.093	0.000	0.831	High
ECM6	How well can you organize an online course (e.g., convey expectations; standards; course rules) with each group of students?	7.20	1.387	14.681	0.000	1.008	High
ECM1	How much can you control disruptive behavior (e.g., disrespectful posting or failure to adhere to outline policies for posting online)?	7.18	1.792	11.243	0.000	0.772	High
ECM4	How much can you do to students to follow the established rules for assignments during an online class?	7.08	1.911	9.717	0.000	0.667	High
ECM3	How well can you establish routines (e.g., facilitating, facilitating, or moderating participation) in coursework to keep online activities smoothly?	6.92	1.670	9.802	0.000	0.673	High
ECM7	How well can you facilitate student responsibility for online learning?	6.79	1.569	9.166	0.000	0.630	High
ECM2	To what extent can you make your expectations clear about student behavior in an online class?	6.58	1.847	6.113	0.000	0.420	High