

# Factors Determining the Need for LMS in Saudi Arabia: Assessing Teacher Behaviour and Dependence

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## ABSTRACT

It is important for Saudi Arabian teachers to develop transformational communication skills so they can communicate information effectively. In the midst of the COVID-19 pandemic, Saudi Arabian teachers played a crucial role in maintaining education activities. The study examined teachers' behavioral intentions regarding the use of learning management systems (Madrasi). UTAUT can be used to determine individuals' technological intentions and behaviors. Descriptive and inferential statistics were calculated from a survey of 100 teachers. Statistically significant correlations were found for dependencies, performance expectations, effort expectations, voluntariness, social influence, and facilitating conditions. Furthermore, there is no significant difference between males and females in behavioral intentions. Additionally, age, experience, and behavioral traits do not contribute significantly to behavioral intention to use Madrasati. Learning management systems are used for a variety of reasons, and this study offers empirical evidence supporting these reasons.

## KEYWORDS

Behavioural Intention, COVID-19, Learning Management System (LMS), Online Platforms, Remote Education, Saudi Arabian School Teachers

## INTRODUCTION

Online learning has become increasingly popular among scholars and researchers. A significant amount of progress has been made in online learning to meet the demand for online courses. For example, Armstrong (2011) reports a 145% increase in degree-granting students taking online learning courses in the United States. Similarly, Penman and Thalluri (2014) argue that online learning makes learning and teaching more interesting and engaging. However, teachers face challenges and concerns when using technology. Research studies have shown that teachers' perceptions of online education indicate major problems associated with its implementation (Ahmed, Štreimikienė & Štreimikis, 2022; Raza, Qazi, Khan, & Salam, 2021).

In 2020, COVID-19 left a significant impact on education systems on a scale never seen before. Many countries called for the shutdown of all activities to prevent pandemonium (WHO, 2020).

DOI: 10.4018/IJWLTT.330989

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According to the United Nations (2020) and UNESCO (2020), as a measure to contain the virus spread, governments forced educational institutes, universities, and schools to use distance education (Kumar et al., 2021). Distance learning is a learning approach focused on the integration of technology and systems in the delivery of education to students (Al-Arimi, 2014). In this regard, governments and educational institutions use distance learning systems to promote online learning, including instruction for students, teacher support and content delivery (Alqabbani et al., 2020).

As a result of the pandemic, all social activities such as work, education, universities were suspended (Ministry of Health in Saudi Arabia, 2020) and distance learning was introduced quickly in accordance with the plan imposed by the Ministry of Education (Alqabbani et al., 2020). There have been many studies examining LMS in the context of COVID-19 from different perspectives. Alarifi (2021), for instance, studied faculty members' satisfaction with e-learning in light of the coronavirus pandemic. A similar study conducted by Zalat (2021) examined university staff perceptions and factors affecting the acceptability of e-learning during the COVID-19 epidemic in Egypt. Similarly, in many other countries, studies examined factors affecting teachers' use of learning management systems (LMS) (Ahmed et al., 2022; Raza et al., 2021). In Saudi Arabia, however, there is limited research on teachers' intentions to use online platforms. Therefore, this study aims to examine teachers' behavior regarding the use of e-learning management systems (LMS) based on UTAUT to determine their technological intentions and behaviors. The purpose of this study is to answer the following questions:

1. What factors influence Saudi Arabian teachers' intention to use LMS?
2. Do Saudi Arabian male and female teachers have statistically significant differences in their intention to use LMS?
3. Do participants' age, education, and work experience affect their intention to use LMS?

## **LITERATURE REVIEW**

### **Learning Management System**

LMS is a platform that allows teachers to create dynamic and effective online learning sites for students. According to the Ministry of Education, Madrasati has become very popular among teachers and educators in Saudi Arabia because of its ease and economy. Several features are included, including self-guided services, and learning content delivery, a scalable web-based platform, and portability (Almaiah et al., 2022). This facilitates and enhances the proven teaching principles of conventional classrooms. Moreover, Madrasati enables hundreds of teachers and students to participate, regardless of their geographical location. The platform offers students rich interactive experiences and is frequently used by teachers to conduct fully online courses (Ministry of Education, 2019).

### **Online Learning**

In order to collaborate online, teachers and students must build relationships, exchange information, and understand concepts that allow them to communicate virtually. In doing so, they can develop their skills, become more engaged, and maintain a connection to what they are learning. Distance learning is not a new concept, and it represented a viable alternative to continuing education during high COVID-19 rates (Mishra et al., 2020). According to a study conducted by Al-Kumaim et al., (2021), most countries were encouraged to conduct educational activities online to maintain social distance during COVID-19. In Saudi Arabia, the Ministry of Education recognized the need for a coordinated and collaborative approach to e-learning in 2002, as the result of a high demand for distance education programs. The Ministry established the National Center for E-Learning and Distance Education in 2006 (Al-Shehri, 2010).

. It provides assistance in the development of e-learning and multimedia technologies. The Center conducts research, develops e-learning initiatives, and manages Saudi Arabia's educational management

systems. The Center offers training programs, including programs targeted at improving faculty and teacher proficiency in e-learning, such as educational design, interactive lesson design, and system use training. The Center also offers e-learning excellence awards through partnerships with international e-learning agencies (Al-Shehri, 2010). Therefore, understanding teachers' intention to use online platforms such as Madrasati is significant in improving online communication (Alarifi, 2021; Al-Arimi, 2014).

Effective online communication relies on the ability to use innovative communication techniques since body language is more difficult to observe and interpret. Instructors must use technology effectively and develop excellent communication skills (Lunenborg, 2010; Ihmeideh et al., 2010). Numerous studies have examined factors influencing teachers' use of LMS (Ahmed et al., 2022; Buabeng-Andoh, & Baah, 2020; Hsu, 2012; Radovan & Kristl, 2017; Raza et al., 2021). For example, Radovan & Kristl (2017) investigated whether teachers use and accept LMS. Their study found that perceived usefulness played an important role in determining the success of learning processes for 326 teachers, and social influence was the most significant factor influencing teachers' acceptance of LMSs. Similarly, Buabeng-Andoh and Baah (2020) examined factors influencing pre-service teachers' intentions to use LMS. An analysis of 361 pre-service teachers found that attitude and social influence affected intentions to use technology, with 43% of the variance explained by these findings.

Raza et al., (2021) also conducted a study of social isolation and acceptance of the LMS during the COVID-19 pandemic. Their results showed a positive correlation between performance expectancy (PE), effort expectancy (EE), social influence (SI), and social isolation in relation to behavioral intention for LMS, and also between behavioral intention for LMS and its use. According to the authors, future researchers should study coronavirus' influence on e-learning acceptance in other countries and territories. In addition, Hsu (2012) used UTAUT to investigate students' acceptance and use of LMS. According to the data from 47 university students' questionnaires, performance expectancy, effort expectancy, and social influence were the three major factors that contributed to Moodle acceptance. Additionally, results showed the behavior intention mediated student use of Moodle.

## THE UTAUT MODEL

According to Venkatesh, Morris, Davis, and Davis (2003), UTAUT can be used to predict individual technology acceptance. The model includes four predictor variables: effort expectancy, facilitating conditions, social influence, and performance expectancy (Garone et al., 2019; Hart & Laher, 2015). As the values of the four variables increase, Venkatesh et al. (2003) report behavioral intention to use the tool corresponds to greater acceptance of the technology. Although there has been some resistance, technological development has increased the use of technology in educational settings (Wang et al., 2021). Since e-learning is a learning process resulting from technology integration in education, teachers may find it difficult to accept and implement it (Hermans et al., 2008; Hart & Laher, 2015). Many teachers still believe that the traditional system is the most effective means of learning (Al-Baadani & Abbas, 2020). The behavior intentions of teachers are important for technology acceptance in this study. In this regard, it is important to determine whether the UTAUT model is predictive, and whether behavioral intention motivates teachers to become more active in using Madrasati (LMS).

## METHODS

Since this study looked at how teachers perceive their actual structure in using the Madrasati platform, a descriptive research method seemed most appropriate. The main goal of the present study was to explore teachers' intention towards the use of online platforms in terms of gender and perception, as well as factors influencing their relationship with online platforms within the LMS during the COVID-19 pandemic. The study employed a survey, which is advantageous in terms of gathering statistical information related to the perceptions, actions, attitudes, or opinions associated with the participating population. The survey was a closed-ended defined questionnaire developed and

conducted using an online Google form. The dependent variable for this study was behavioral intention to use LMS, and the independent variables included dependency on LMS use, perceptions toward LMS use, performance expectancy, effort expectancy, voluntary use, social influence, facilitating conditions, and attitude towards LMS use. The survey questionnaire developed for the study is based on the work of Balkaya & Akkucuk (2021); Bervell & Arkorful (2020); and Garone et al. (2019).

The survey sought information about teachers' intention to use LMS. The survey contained 38 items and was divided into two sections. The first section of the survey invited participants to share their demographic information. The second section asked participants to specify their interest level in LMS based on their agreement with a series of statements, using a five-point Likert scale. On the scale, strongly agree was represented as 5, and strongly disagree was represented as 1. A survey was sent via email to Saudi Arabian teachers working in Riyadh and was completed by 100 participants from different schools in Riyadh. Additionally, these participants came from a variety of disciplines, including physics, mathematics, biology, chemistry, Arabic, computer science, and English. In order to facilitate easy understanding, the survey was written in English.

## RESULTS AND DISCUSSION

This section presents empirical analyses based on the information provided previously. In order to analyze and present the data, SPSS version 20 as used. A descriptive analysis of the data was performed based on variables included in the study. Inferential and descriptive statistics were used. Analysis of means, standard deviations, skewnesses, and kurtoses investigated quantitative variables, and regression analysis was used for inferential statistics.

### Demographic Profile

This section provides the detailed statistics obtained from the variables such as gender, age, education, and years of experience in teaching. As shown in Table 1, the demographic profile of the gender is 57% of respondents (n=57) were male, while 43% (n=43) were female. The largest proportion of the respondents belonged to the age group 36-45 years, representing 40% (n=40) followed by the age group of 25 to 35, representing 29% (n=29) and 46 to 55, representing 20% (n=20). The remaining 11% (n=11) belonged to the age group 56 and above. A large percentage of the participants, 55% (n=55), held a bachelor's degree. Participants with master's degree represented 31% (n=31), and those with a PhD represented 14% (n=14) of the total. With respect to the number of years of teaching experience, the largest proportion of respondents, 31% (n=31), had teaching experience of less than 5 years. Participants with teaching experience of 6-10 years represented 25% (n=25) of the study group. Those with 11-20 years and 16-20 years each represented 18% (n=18) of the participant group. Participants with 21 years or more of teaching experience represented 8% (n=8) of total respondents.

Table 2 displays the general questions regarding the use of LMS. In response to the question about previous use of LMS, it was found that 78% (n=78) of respondents had utilized LMS before while 22% (n=22) had not utilized it before. Responses regarding usage frequency of LMS indicated that 56% of respondents utilized it to a large extent, 22% (n=22) used it somewhat, and 11% (n=11) of respondents used LMS very little or had never used LMS. In response to the question about how often they use LMS, 56% (n=56) responded that they almost always used it, and 20% (n=20) indicated they used it often. Only 12% of respondents (n=12) used an LMS seldom and 12% (n=12) never used it.

### Reliability Test

Table 3 provides overall reliability statistics. The Cronbach coefficient alpha was calculated for the BITU with all variables included. On the basis of 100 respondents, the BITU reliability was calculated to be .974. In this case, Cronbach's coefficient alpha exceeded the acceptable level of reliability of 0.6-0.7 on all variables, which is considered acceptable, according to Sekaran & Bougie (2016), who

**Table 1. Participants' demographics**

Demographic Variables	Categories	Frequency	Percent
Gender	Male	57	57.0%
	Female	43	43.0%
	Total	100	100.0%
Age	25-35 Years	29	29.0%
	36-45 Years	40	40.0%
	46-55 Years	20	20.0%
	56 Years or above	11	11.0%
	Total	100	100.0%
Education	Bachelor	55	55.0%
	Master	31	31.0%
	PhD	14	14.0%
	Total	100	100.0%
Years of experience in teaching	5 years or less	31	31.0%
	6-10 years	25	25.0%
	11-15 years	18	18.0%
	16-20 years	18	18.0%
	21 years or more	8	8.0%
	Total	100	100.0%

**Table 2. General questions regarding the use of LMS**

Question	Categories	Frequency	Percent
Have you used a learning management system (LMS) before?	No	22	22.0%
	Yes	78	78.0%
	Total	100	100.0%
To what extent do you use LMS?	Not at all	11	11.0%
	Somewhat	22	22.0%
	To a great extent	56	56.0%
	Very little	11	11.0%
	Total	100	100.0%
How often do you use LMS?	Almost always	56	56.0%
	Often	20	20.0%
	Seldom	12	12.0%
	Never	12	12.0%
	Total	100	100.0%

state that coefficients over 0.7 are reliable indicators. Moreover, for the variable voluntariness in use, the value was 0.602, which is also considered in the range of acceptable reliability levels.

**Table 3. Overall reliability**

Variable	N of Items	Cronbach's Alpha
Behavioral Intention to Use	4	.846
Dependency on LMS Use	5	.851
Perceptions towards LMS Use	11	.907
Performance Expectancy	6	.879
Effort Expectancy	3	.827
Voluntariness in Use	3	.602
Social Influence	5	.732
Facilitating Conditions	8	.893
Cronbach's Alpha	45	.974

## Descriptive Statistics

Data from the sample measurement instruments are presented in this section as descriptive statistics.

## Measures of Central Tendency

Descriptive statistics based on the variables included in questionnaire are presented below. The detailed measures of central tendency and dispersion for the proportion of the usage of LMS by the teachers are shown in Table 4.

## Pearson Correlation

A Pearson correlation test was calculated to estimate the relationship between the behavioral intention to use LMS and dependency on LMS, perception towards LMS use, performance expectancy, effort expectancy, voluntariness in use, social influence, and facilitating conditions. Table 5 shows that significant positive relationships were found between behavioral intention to use and dependency on LMS use ( $r=.891, p<0.05$ ), perceptions towards LMS use ( $r=.841, p<0.05$ ), performance expectancy ( $r=.845, p<0.05$ ), effort expectancy ( $r=.736, p<0.05$ ). Similarly, there was also a direct and significant relationship with voluntariness in use ( $r=.484, p<0.05$ ), social influence ( $r=.763, p<0.05$ ) and facilitating conditions ( $r=.790, p<0.05$ ).

## Group Statistics

Table 6 shows that the mean for females was 4.24 and standard deviation was 0.144, while mean value for males was 4.15 and standard deviation was 0.128.

## Independent Samples Test

The F-statistics of Table 7 did not show a significant difference; the confidence intervals for the lower and upper intervals were -0.29946 and 0.46918, respectively. In terms of behavioral intention to use, non-significant differences were found between males and females ( $t=0.438, p=0.6$ ), which means that the variance was equal between the two groups.

## ANOVA Test

Using one-way ANOVA, Table 8 shows that age and work experience do not have statistically significant associations with behavioral intention to use LMS. Based on a one-way ANOVA, the result shows a statistically significant relationship between behavior intention to use LMS and education of respondents ( $p=0.002$ ).

**Table 4. Means, standard deviation, minimum, and maximum scores for the dimensions of LMS usage**

	N	Minimum	Maximum	Mean	Std. Deviation
<b>Behavioural Intentions to Use LMS</b>					
I intend to use an LMS in the future.	100	1.0	5.0	4.440	1.0854
I predict I would use an LMS in the future.	100	1.0	5.0	4.290	1.0945
I plan to use an LMS in the future.	100	1.0	5.0	3.990	1.2673
Because of the possibilities that LMS offers, I intend to approach my following course more innovatively.	100	1.0	5.0	4.040	1.1627
<b>Dependency on LMS Use</b>					
I used LMS for online forum discussions instead of face-to-face interactions.	100	1.0	5.0	4.310	1.1694
I used LMS for uploading and sharing learning resources.	100	1.0	5.0	4.250	1.1667
I used LMS for announcements on teaching and learning activities.	100	1.0	5.0	3.930	1.3428
I used LMS for videoconferencing.	100	1.0	5.0	3.990	1.2018
I used LMS for providing links to additional online resources for students after online sessions.	100	1.0	5.0	4.040	1.2627
<b>Perceptions Towards LMS Use</b>					
LMS offers opportunities to experiment with knowledge.	100	1.0	5.0	4.290	1.2496
LMS offers opportunities to take control of the learning process.	100	1.0	5.0	4.170	1.1464
LMS offers opportunities to experience things students may learn about.	100	1.0	5.0	3.980	1.2790
LMS offers opportunities to stimulate transfer between various subjects.	100	1.0	5.0	3.910	1.2561
LMS offers opportunities to interact with other students.	100	1.0	5.0	4.180	1.1667
LMSs offers opportunities to think critically.	100	1.0	5.0	4.090	1.2399
LMSs offer opportunities to motivate students.	100	1.0	5.0	4.040	1.1970
The use of LMS at university level is a good idea.	100	1.0	5.0	4.100	1.2019
LMS makes teaching more interesting.	100	1.0	5.0	4.130	1.1777
I enjoy using LMS as a digital academic tool.	100	1.0	5.0	4.020	1.2142
LMS makes learning more interesting for the students.	100	1.0	5.0	4.270	1.1534
<b>Performance Expectancy</b>					
Using LMS increases my productivity.	100	1.0	5.0	4.430	1.1393
If I use an LMS, I will increase my chances of getting a raise.	100	1.0	5.0	3.970	1.3139
I would find LMS useful within my teaching assignments	100	1.0	5.0	3.970	1.3292
The use of LMS enables me to accomplish tasks quicker and more efficiently	100	1.0	5.0	3.910	1.3341
Using LMS enhances my effectiveness as a teacher	100	1.0	5.0	3.940	1.3620
Through using LMS, I increase my better chance for receiving good student feedback	100	1.0	5.0	4.070	1.3047

continued on following page

Table 4. Continued

	N	Minimum	Maximum	Mean	Std. Deviation
<b>Effort Expectancy</b>					
Learning to operate LMS skilfully is easy for me.	100	1.0	5.0	4.320	1.2050
I find the interface of LMS clear and understandable	100	1.0	5.0	3.910	1.3188
I find LMS easy to use	100	1.0	5.0	4.110	1.4063
<b>Voluntariness in Use</b>					
Using an LMS is voluntary in my institution.	100	1.0	5.0	4.300	1.1934
I feel I am being forced to use LMS due to COVID-19.	100	1.0	5.0	3.380	1.6623
I think any LMS usage to support face-to-face distance education delivery should be made optional.	100	1.0	5.0	3.960	1.1714
<b>Social Influence</b>					
People who influence my behaviour will think that I should use an LMS.	100	1.0	5.0	4.290	1.1573
The colleagues or seniors in my organization have been helpful in the use of LMS.	100	1.0	5.0	4.130	1.2363
In general, my university has supported the use of an LMS.	100	1.0	5.0	3.950	1.1753
My colleagues think that I should use LMS more innovatively.	100	1.0	5.0	3.800	1.2391
The educational council of my programme supports the use of LMS.	100	2.0	5.0	4.210	.9566
<b>Facilitating Conditions</b>					
I have the resources necessary to use LMS.	100	1.0	5.0	4.370	1.1160
I have the knowledge and skills necessary to use LMS.	100	1.0	5.0	4.320	1.1710
A specific person is available for assistance with difficulties when using LMS.	100	1.0	5.0	3.810	1.2925
LMS is compatible with the way I teach.	100	1.0	5.0	3.860	1.2474
I feel that I can make informed decisions about which tools/ resources to use within LMS.	100	1.0	5.0	4.120	1.1745
I have looked for tools outside of LMS so that I can further innovate with my teaching through technology.	100	1.0	5.0	4.240	1.1731
LMS is compatible with other modes of remote teaching I use during COVID-19 and in general.	100	1.0	5.0	4.150	1.0860
Valid N (listwise)	100				

## Regression Analysis

Based on the regression analysis shown in Table 9, 83% of variation in behavioral intention to use can be explained by all variables,  $R=0.916a$ , and  $R^2 = 0.839$ . Furthermore, Table 10 shows that the combined predictors significantly predicted teachers' behavioral intention [ $F(7, 92) = 68.576, p < .001$ ].

Using the UTAUT model, this study determined the factors influencing teachers' behavior regarding LMS during Coronavirus pandemic. This study examined current practices of remote or online education within Saudi Arabian schools from the perspective of Saudi Arabian teachers. All independent variables (IVs) assessed in this study – behavioral intention to use LMS, dependencies on LMS use, perceptions towards LMS use, performance expectations, effort expectations, voluntariness



Table 5. Pearson correlation

		BITU	Dep	PTLSM	PE
BITU	Pearson Correlation	1	.891**	.841**	.845**
	Sig. (2-tailed)		<.001	<.001	<.001
	N	100	100	100	100
		EE	Vol	SI	FC
	Pearson Correlation	.736**	.484**	.763**	.790**
	Sig. (2-tailed)	<.001	<.001	<.001	<.001
	N	100	100	100	100

Table 6. Gender, mean, and std. deviation

		N	Mean	Std. Deviation	Std. Error Mean
BITU	Females	43	4.2384	.94484	.14409
	Males	57	4.1535	.96912	.12836

Table 7. T-test for equality of means

		Levene's Test for Equality of Variances		T-Test for Equality of Means						
				F	Sig.	t	df	Sig. (2-Tailed)	Mean Difference	Std. Error Difference
								95% Confidence Interval of the Difference		
								Lower	Upper	
BITU	Equal variances assumed	.138	.711	.438	98	.662	.08486	.19366	-.29946	.46918
	Equal variances not assumed			.440	91.769	.661	.08486	.19297	-.29841	.46813

Table 8. One-way ANOVA

Demographic Variables	Groups	Sum of Squares	df	Mean Square	F	Sig.
Age	Between Groups	.568	3	.189	.203	.894
	Within Groups	89.697	96	.934		
	Total	90.265	99			
Work Experience	Between Groups	1.096	4	.274	.292	.883
	Within Groups	89.169	95	.939		
	Total	90.265	99			
Education	Between Groups	14.885	4	3.721	4.690	.002
	Within Groups	75.380	95	.793		
	Total	90.265	99			

**Table 9. Overall regression**

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.916 <sup>a</sup>	.839	.827	.39724

a. Predictors: (Constant), FC, Vol, EE, SI, Dep, PTLSM, PE

**Table 10. ANOVA for regression**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	75.748	7	10.821	68.576	< .001
	Residual	14.517	92	.158		
	Total	90.265	99			
a. Dependent Variable: BITU						
b. Predictors: (Constant), FC, Vol, EE, SI, Dep, PTLSM, PE						

in use, social influence, and facilitation conditions – were shown to have statistically significant positive correlations. Based on the results of other studies (Raza et al., 2021; Hsu 2012), performance expectation and effort expectation were positively correlated with behavioral intention for LMS usage. Additionally, the current findings were partially inconsistent with those of the previous studies conducted by Buabeng-Andoh, & Baah (2020) and Radovan & Kristl (2017), which demonstrated that social influence, performance expectations, and effort are most significantly related to teacher acceptance of LMSs. In response to the fact that the effort was easy to use, teachers developed a positive behavioral intention toward it, as expected. Similar to performance expectations, behavioral intentions were influenced by positive attitudes toward usage. According to teachers, LMS for teaching are relevant to their jobs, useful, and easy to implement. This resulted in teachers indicating a higher level of positive behavior in regard to the adoption of LMS. According to these findings, the Ministry of Education should integrate LMS by taking all relevant factors into account. This might positively influence teachers' intentions towards LMS. There was a partial inconsistency in findings that could be explained by different sampling methods and differences in the backgrounds of participants. Furthermore, the characteristics of the study sample may have influenced the results.

Further, the results of this study showed that there are no significant differences between males and females regarding behavioral intentions to use LMS. In terms of behavioral intention to utilize LMS, age, experience, and behavioral traits were not statistically significant. However, there was a statistically significant correlation between education and behavior intention to use LMS. These findings are in line with those of Al-Sharhan et al., (2020), Alenezi, (2020); and Hamdan, (2014); in these studies, gender, age, and experience did not play a significant role. Further research may confirm whether age, experience, and education affect teachers' behavioral intention to use technology in different Saudi Arabian regions and institutions. Further research may also reveal if teachers' intentions to use online platforms like LMS depend on their gender.

## CONCLUSION

In view of these findings, it is evident that schoolteachers in Saudi Arabia are open to evolving educational practices through the integration of technology. As a result, it is essential to train and assist Saudi school teachers in using LMS on a continuous basis so that they can gain a deeper understanding

of the platform. Training on LMS may encourage teachers to embrace modern technology more rapidly and transition smoothly from traditional instructional practices to technologically developed learning solutions in limited environments. An example of such solutions would be those that have emerged during the current COVID-19 pandemic. Teachers' acceptance of technologies is also necessary in order to fully utilize the potential of using LMS in Saudi Arabian education (Al-Sharhan et al., 2020; Hamdan, 2014).

## **RECOMMENDATIONS FOR FUTURE RESEARCH**

Researchers found that UTAUT models and teachers' behavioral intentions to use LMS were positively correlated. In future studies, external variables, such as system characteristics and individual characteristics, should be included to determine whether the latest technologies are accepted. Moreover, this study examined only teachers living in Riyadh, Saudi Arabia. Due to this, the sample was not representative of the population at large. The general population will be more accurately reflected if further research is conducted, and a diverse sample is used.

## **DATA AVAILABILITY**

The tables used to support the findings of this study are included in the article.

## **CONFLICTS OF INTEREST**

The authors declare that they have no conflicts of interest.

## **FUNDING STATEMENT**

The authors did not receive support from any organization for the submitted work.

## **ACKNOWLEDGMENT**

The authors would like to thank all the teachers who participated in and contributed to this study.

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