

## DIGITALIZATION IN EDUCATION: APPLICATION OF UTAUT TO USE LEARNING MANAGEMENT SYSTEM

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### ABSTRACT

E-learning is a way of instruction in higher education around the world. In e-learning systems, digital technologies are utilized to obtain, store, and process learning resources. Using the Unified Theory of Acceptance and Use of Technology (UTAUT) model, the current study intends to evaluate faculty willingness to use Learning Management Systems in Higher Education Institutes in India. The UTAUT has been extended to incorporate two more variables: UTAUT-2's 'Hedonic Motivation' and the D& M Model's 'Course Quality.' A standardized questionnaire is used to obtain data from 480 respondents. The study used PLS-SEM for data analysis and applied Structural Equation Modelling. It is revealed that the constructs of extended UTAUT have a crucial impact on the acceptability behaviour of faculty in Higher Education Institutes in India to use the Learning Management System. The current study is unusual as it used extended UTAUT to achieve the study's goals. The outcomes of this study have significant ramifications for different stakeholders in India's higher education institutions.

**Keywords:** Higher Education Institutes, Learning Management System, extended UTAUT, PLS-SEM

### 1. INTRODUCTION

Access to education had been completely obstructed during COVID-19 if information technology had not provided us with the possible alternatives (Raza et al., 2021a). One of these options was a Learning Management System, which allowed the teaching and learning process to continue throughout that time (Roy & Brown, 2022).

Learning Management System is an internet-based technology that facilitates remote but face to face delivery of the course content by a teacher to his students (Veluvali & Suriseti, 2021). It helps to manage online learning by creating streamlined communication between instructors and learners (Shurygin et al., 2021). LMS is generally confused with the terms like e-learning, virtual learning and remote learning. No doubt, all these are developments in which technology plays the most crucial role in the domain of education. The common feature of LMS and virtual learning is using

the internet to enhance the learning process, but apart from delivering course and learning material online, LMS manages the whole education process (Al-Adwan et al., 2022). The first LMS program was invented by a professor of Psychology, Prof. Sidney Pressey. This invention was to permit teachers to focus on more analytical activities for their students (Kadosh & Dowker, 2015; sethi et al., 2021).

Since then, LMS programs have become famous in academia, and the use of these applications has increased manifold during the times of pandemic. Many renowned educational institutions have started making use of LMS for the effective learning of their students. The use of LMS helps to create and manage the course, course schedule, attendance, online assessment, discussions etc. (Al-Adwan et al., 2022).

The most commonly used learning management systems in the education sector

are Blackboard, Moodle, Canvas, Google Classroom and Litmos. All these are open-source learning management systems and are very beneficial for both learners as well as instructors (Ghosh et al., 2019). But despite too many benefits, the effective functioning of LMS depends upon both learners' and instructors' intention (Ikhsan et al., 2021). The availability of technology is not a surety that it will be used and accepted by faculty and students (Al-Adwan et al., 2022; Jain et al., 2021; Jhamb et al., 2021). Some studies in the past show that the dropout rate of students in online learning programs is much higher than offline model of learning (Dodge et al., 2009; Ikhsan et al., 2021). Many experts have looked into the aspects that influence students' acceptance of online learning programs by applying different technology acceptance models (Alshehri et al., 2019, 2020; Buabeng-Andoh & Baah, 2020a; Obienu & Amadin, 2021; Raza et al., 2021a; Thongsri et al., 2019; Wut & Lee, 2021). Obienu & Amadin (2021) applied an innovative model to identify students' behaviour towards learning innovations. The four constructs used in this model positively influenced the behaviour of users towards innovations in learning (Obienu & Amadin, 2021). Another study extended UTAUT and identified 'personal innovation' and 'financial cost' as important predictors affecting university students' behaviour to use Learning Management System (Twum et al., 2021).

So, most of these researchers looked into students' intentions to use an LMS. Only a research done in a university of South Africa, and another one in a university of Iran studied the behavioural intentions of university teaching staff regarding adopting a Learning Management System (Moonsamy & Govender, 2018; Motaghian et al., 2013) but these studies were conducted a few years back and the results of these studies are not applicable in the present context. A previous research also investigated the desire of teachers who had to join their service yet, to utilize a learning management system and reported that attitude and societal influence affect behaviour towards usage of technology but facilitating conditions do not (Buabeng-Andoh & Baah, 2020b). The analysis of previous literature on LMS usage reveals that using technology acceptance models and employing their original constructs is deemed

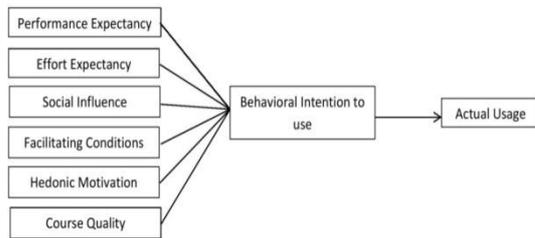
insufficient in identifying concerns connected to sustained LMS usage goals in the present scenario (Al-Adwan et al., 2022; Almaiah & Alyoussef, 2019; Ashrafi et al., 2020). Most of these studies overlook essential elements like course quality and hedonic motivation which can help to increase learning management system acceptability and utilisation. From this standpoint, it's vital to figure out what elements influenced higher education faculty's LMS utilisation intentions during COVID-19 pandemic and even after pandemic. As a result, the current study raises the question "What are the significant elements influencing higher education faculty's continuous usage of LMS?" The current study fills the gap by proposing a complete model incorporating two additional constructs of behavioural intention and verifying the hypotheses in the present environment of online learning. A survey of 480 faculty members from India's higher education institutions is done. For data analysis, Partial Least Squares (PLS) and Structured Equation Modelling (SEM) are used.

## 2. PREVIOUS RESEARCH

### 2.1 Theoretical Framework

The current study presents and examines a conceptual model of Learning Management System adoption by incorporating two additional constructs, 'Hedonic Motivation' and 'Course Quality' to UTAUT. The initial UTAUT model was developed by Venkatesh et al; (2003) and includes four core constructs effort expectancy, performance expectancy, social influence, and facilitating conditions and four demographic mediating variables affecting the primary constructs to ascertain the impact of these constructs on the intention of use of technology. This model helps the researchers present an apparent effect of technology acceptance constructs (Raza et al., 2021a). UTAUT 2 was created by adding three new constructs to the original UTAUT: price value, hedonic motivation and habit. (Venkatesh et al., 2012). Thus UTAUT 2 has 7 main constructs and 3 mediating variables. The model employed in the present research has taken the first 4 constructs from UTAUT by including a construct 'Hedonic Motivation' from UTAUT-2 (Venkatesh et al., 2012) and another construct 'Course Quality' from D& M Model (DeLone & McLean, 1992). The figure below shows the proposed conceptual model,

and the next section describes the predicted relations based upon available literature.



**Figure 1: Proposed Conceptual Model**

### Performance Expectancy

Performance expectancy means how well a technology accomplishes the required task. (Ahmed et al., 2021; Venkatesh et al., 2003). With regard to the perception of teachers regarding teaching via learning management system, it is their belief regarding the effectiveness of LMS in teaching (Buabeng-Andoh & Baah, 2020b). Most of the previous researchers believe that willingness of students to use LMS is affected by their expectations regarding the performance of that system (Ahmed et al., 2021; Alshehri et al., 2020; Raza et al., 2021a;). Buabeng & Baah, 2020 reported that pre-service teachers' intention is also positively affected by their expectations from the performance of the learning management system in teaching (Buabeng-Andoh & Baah, 2020b). But one of the studies reported that the behavioural intention of students to use LMS was not supported by PE (Fidani & Idrizi, 2012). Due to contradictory outcomes of previous research, the authors in this study further investigated this construct.

H1: Performance Expectancy significantly supports the behavioural intention of faculty in higher education institutes to use LMS.

### Effort Expectancy

The effort expectancy of a system means how easily that system can be used. If the user thinks it is simple, he is more likely to use it (Venkatesh et al., 2003). In the case of using an LMS, the learners' will to use it is also associated with the ease of using it (Alshehri et al., 2020). Many previous researches reported that it has a substantial effect on the willingness of students to use learning management systems for learning (Ahmed et al., 2021; Dwivedi et al., 2019; Raza et al.,

2021b). But the study conducted by Zwain (2019) concluded that effort expectancy did not support both faculty and students' willingness. In the present study, the authors present the following hypothesis:

H2: Effort Expectancy significantly supports the behavioural intention of faculty in higher education institutes to use LMS.

### Social Influence

Social influence means the effect of the perception of nearby people on one's perception regarding the acceptance of technology (Venkatesh et al., 2003). If we talk about LMS acceptability, it is the effect of teachers' and students' social networks on their motivation to utilize learning management systems. Venkatesh et al. (2003) reported a favourable correlation between social impact and users' willingness to accept technology. Most previous researchers also support this hypothesis and believe that social influence affects students' intention to use LMS. (Abdallah et al., 2021; Abdou & Jasimuddin, 2020; Adwan et al., 2018; Ahmed et al., 2021; Dwivedi et al., 2019; Fidani & Idrizi, 2012.; Ikhsan et al., 2021;; Raza et al., 2021a; Wut & Lee, 2021). One of the previous Research proves that it is a very important factor affecting women's behaviour towards technology but an insignificant factor in the case of males (the BITS Pilani, India et al., 2020). Social influence also supports faculty's intention to use LMS' Blackboard', but it is not a very important predictor affecting the users of this LMS (Moonsamy & Govender, 2018). Prasad et al. reported social influence as a very strong predictor to impact the behaviour of international students towards blended learning (Prasad et al., 2018; Habeeb et al., 2021). Whereas, the behaviour of faculty towards LMS' Blackboard' at a South African university was less impacted by their social circles (Moonsamy & Govender, 2018). Studies conducted at Community College to investigate the use of LMS through mobile access and at a University College at Ghana reported insignificant association between social influence and intention as well as actual usage of LMS (Buabeng-Andoh & Baah, 2020a;). In the present study, the authors propose the following hypothesis:

H3: Social Influence significantly supports the behavioural intention of faculty in higher education institutes to use LMS.

### **Facilitating Conditions**

Facilitating conditions means the availability of adequate infrastructural and technical conditions supporting its users' use of a technology (Venkatesh et al., 2003). When we talk about a learning management system, facilitating conditions refer to the technical and other supporting conditions that emphasize using the system (Raza et al., 2021a). In the UTAUT model, Venkatesh et al. did not find an important connotation between facilitating conditions and users' will of a technology to use the same. Later, many studies confirmed similar results and reported facilitating conditions as an insignificant predictor affecting students' willingness to use LMS (Alshehri et al., 2020; Buabeng-Andoh & Baah, 2020a; Fidani & Idrizi, 2012; Raza et al., 2021a; the BITS Pilani, India et al., 2020). On the other hand, many other researchers contradicted these findings, finding that facilitating conditions, along with performance expectancy, effort expectancy, and social impact, are all essential constructs influencing the behaviour of LMS users. (Abdallah et al., 2021; Abdou & Jasimuddin, 2020; Ahmed et al., 2021; Moonsamy & Govender, 2018; Prasad et al., 2018; Raza et al., 2021b). Another research was conducted at Community College, Hong Kong, to determine the predictors of the adoption of mobile access to learning management systems used at that college and found facilitating conditions as the most significant factor (Wut & Lee, 2021; Poonia et al., 2021). Due to dissimilarity in the results of previous researches, the authors were motivated to conduct the further research and proposed the following hypothesis:

H4: Facilitating Conditions significantly support the behavioural intention of faculty in higher education institutes to use LMS.

### **Hedonic Motivation**

Hedonic motivation is an internal factor affecting the willingness to use a particular technology. The above mentioned four constructs are taken from UTAUT Model. According to this model, the essential factor influencing a technology user's intention is performance expectancy (Venkatesh et al.,

2003), and this construct is an external motivational factor. In UTAUT-2, Venkatesh and colleagues incorporated three more variables including hedonic motivation in the original model. The authors in this study have taken the hedonic motivation construct of UTAUT-2 in their model. One previous study named this construct as 'Perceived Enjoyment' (Ahmed et al., 2021). Hedonic motivation refers to the role played by technology in a person's perception of gladness and is an internal motivational factor (Escobar-Rodríguez et al., 2014; Escobar-Rodríguez & Carvajal-Trujillo, 2014). Various studies in the domain of information technology have proved it a strong predictor affecting the use of the technology (Alshehri et al., 2019; Ayyagari, 2006; Balog & Pribeanu, 2010; Wang & Scheepers, 2012). But no particular study related to learning management systems has studied the effect of this construct on the intention of learners and instructors. So, the researchers in the present research have also studied this construct. Following is the hypothesis taken in relation to this construct.

H5: Hedonic Motivation significantly supports the behavioural intention of faculty in higher education institutes to use LMS.

### **Course Quality**

Another important construct taken in the present research is 'Course Quality'. This construct is taken from the study of Mtebe and Raisamo (Mtebe & Raisamo, 2014), who had taken this construct from D&M Model, 1992 & 2003 in which it is named 'information quality'. According to this model, information quality is a very important factor affecting the intention of users (DeLone & McLean, 1992). A course at a learning management system providing quality learning to the students will satisfy the learners. So, they will be interested in studying through that learning management system management system in the future also (Mtebe & Raisamo, 2014). The users of an online learning application also confirm information quality as a strong predictor affecting their intention to use that application (Thongsri et al., 2019). Most empirical evidence regarding this construct considers it a strong and significant variable affecting the users' usage of a particular technology (Aparicio et al., 2017; Hassanzadeh et al., 2012). But a few researchers found it an insignificant factor to influence the users

(Alshehri et al., 2019; Ameen et al., 2019). The idea behind incorporating this construct in their model is that the course quality influences the learners. The faculty is also motivated when the course outcomes are measurable and attainable, and the course content is academically significant. Following is the hypothesis taken in relation to this construct.

H6: Course Quality significantly supports the behavioural intention of faculty in higher education institutes to use LMS in teaching.

### Behavioural Intention

The empirical evidence on technology adoption models depicts that behavioural intention results from the above discussed basic constructs acting together. But in the context of LMS, many researchers believe that actual usage by the user is the outcome of the intention of users' to use LMS (Ahmed et al., 2021; Raza et al., 2021b). In e-learning, behavioural intention is the level of commitment of faculty to use a learning management system to fulfil their teaching objectives (Raza et al., 2021a). The behavioural intention of users is affected by all other constructs discussed above, which affects the actual use of LMS by faculty. Empirical research suggests a link between a user's willingness and actual use of the LMS. (Alshehri et al., 2020; Ameen et al., 2019; Motaghian et al., 2013; Raza et al., 2021a). Following is the hypothesis taken in relation to this construct.

H7: Behavioural Intention significantly supports the actual use of LMS by faculty in higher education institutes.

## 3. DATA INPUTS AND RESEARCH METHODOLOGY

### 3.1. Context and Subjects

The present study derived the results from primary data, for which information was obtained through online surveys (Hanaysha et al., 2021; Sharma et al., 2021). Desired data was gathered using a structured questionnaire. The survey instruments comprised 36 items (Appendix A) to evaluate the proposed model's eight components. Items were modified from prior research, with content changes made to make them pertinent to this research. Seven constructs were rated on a five-point Likert scale fluctuating from 1

to 5, with one indicating "strongly disagree", and five indicating "strongly agree." On a five-point scale, respondents were asked to rate how often they used the LMS platform, with five being "more than once a day" and one meaning "never".

The survey instrument was sent to more than 1000 respondents, of which 540 filled questionnaires were received. The study needed a minimal sample size of 159 respondents using G\*Power software version 3.1.9.7 (Faul et al., 2007; Sharma et al., 2021, 2022a, 2022b); however, a sample size of 480 was used that met the acceptable sample size criteria. Out of 540 questionnaires, 60 were eliminated during the data cleaning process as these were either incomplete or some other biasness was noticed in the responses.

Before final research, a pilot survey was undertaken to assess the questionnaire items' reliability. To conduct this survey, 50 faculties were selected randomly from the targeted population. Application of Cronbach's alpha was made to regulate the inner dependability of the constructions' components, It is considered acceptable if value of reliability coefficient of 0.70 or greater. (Nunnally & Bernstein, 1994; Arya et al., 2018). As shown in **Table 1, the value of all constructs is more than or equal to 0.768.**

**Table 1. Cronbach's alpha values for the pilot research**

Constructs	Cronbach's Alpha
PE	0.948
EE	0.894
SI	0.936
FC	0.88
HM	0.896
CQ	0.91
BI	0.768
AU	0.892

### 3.2. Findings of study

The study framework is constructed based on the prior literature and indicates a structural relationship between constructs. The model is analysed using a multivariate statistical technique. The link between constructs is studied using SEM. This method combines factor analysis and multiple linear regression analysis to reveal multiple causal impact

relationships between components (Jr et al., 2017).

### 3.3. Checking convergent and discriminant validity

The model is evaluated using the PLS-SEM method (Rashid et al., 2022; Sharma et al., 2021, 2022a, 2022b). Standardised loadings have been calculated in (Table 2). The loading score for each element was more than 0.708.

the construct is internally consistent and reliable (Shashi et al.; 2020). Convergent validity is checked using the composite reliability index (CRI) and average variance. The minimum condition for validity is when the Average Variance Extract of all constructs is greater than 0.50 (Arya et al., 2021; 2019).

The Fornell-Larcker criterion is utilized to test the Discriminant validity (Fornell & Larcker,

**Table 2: The evaluated Outcomes of the constructs of the measurement model**

Construct/ Associated Items	Inner loadings	CR	AVE
<b>ActUse</b>			
AU1	0.828		
AU2	0.887	0.891	0.732
AU3	0.85		
<b>BI</b>			
BI1	0.722		
BI2	0.722	0.768	0.524
BI3	0.728		
<b>ConsumQty</b>			
CQ1	0.746		
CQ2	0.702	0.899	0.648
CQ3	0.724		
CQ4	0.733		
CQ5	1.061		
<b>EffrtExpct</b>			
EE1	0.794		
EE2	0.738		
EE3	0.775	0.893	0.626
EE4	0.818		
EE5	0.828		
<b>FC</b>			
FC1	0.703		
FC2	0.757		
FC3	0.783	0.879	0.592
FC4	0.774		
FC5	0.826		
<b>Hedonic</b>			
HM1	0.713		
HM2	0.819		
HM3	0.765	0.898	0.638
HM4	0.824		
HM5	0.862		
<b>PerfExpect</b>			
PE1	0.814		
PE2	0.865		
PE3	0.907		
PE4	0.889	0.948	0.785
PE5	0.949		
<b>SocialInflu</b>			
SI1	0.798		
SI2	0.805		
SI3	0.83	0.936	0.745
SI4	0.957		
SI5	0.914		

The another step is to look at the CR to see if

1981). Discriminant validity Proves its

existence when the differences amongst the study constructs are smaller than the difference that every construct divides amongst its other items in the model, and also discriminant validity is considered to be assessed when the square root of the Average variance extracted is larger than the correlation's index. Table 3 shows that all constructs meet the criteria.

validity and eventually, this will lead to the real use of LMS platform. To confirm that the regression findings were unbiased, The latent variable scores of the PLS-SEM findings were used by VIF to analyse collinearity among the exogenous variables. A VIF score of less than 5 means that the predictor variables are not collinear.

The model's VIF values in this study vary

**Table 3: Discriminant Validity - Fornell-Larcker Criterion**

	AU	BI	CQ	EE	FC	HM	PE	SI
AU	0.855							
BI	0.609	0.724						
CQ	0.525	0.497	0.805					
EE	0.449	0.566	0.393	0.791				
FC	0.412	0.532	0.375	0.527	0.77			
HM	0.721	0.6	0.441	0.573	0.466	0.799		
PE	0.551	0.61	0.471	0.464	0.448	0.586	0.886	
SI	0.423	0.536	0.315	0.377	0.366	0.449	0.582	0.863

Source: Author's Calculation

### 3.4. Discriminant Validity - Heterotrait Monotrait Ratio (HTMT)

Heterotrait Monotrait Ratio (HTMT) is also used to examine discriminant validity. Ringle Henseler and Sarstedt devised the HTMT approach for assessing discriminant validity in 2015 (Henseler et al., 2015). The HTMT ratio indexes must be less than 0.85 if a more stringent criterion is used (Kline, 2011). The HTMT can reach 0.90 (Gold et al., 2001). All of the connections in Table 4 have a score of less than 0.90.

from 1 to 2.068. Although the VIF for all variables is less than 5, this indicates no collinearity. The relevance of the path coefficients must be evaluated once the collinearity issue has been investigated (Narula et al., 2020).

Seven hypotheses were supported at a 5% level of significance (Table 5). In this pandemic period, the performance expectancy of a learning management system ( $\beta = 0.182$ ,  $p < 0.05$ ) substantially influences the behavioural intention of faculty to use LMS for

**Table 4: Discriminant Validity -Heterotrait Monotrait Ratio (HTMT)**

	AU	BI	CQ	EE	FC	HM	PE	SI
AU								
BI	0.608							
CQ	0.521	0.481						
EE	0.448	0.565	0.383					
FC	0.41	0.53	0.365	0.525				
HM	0.715	0.601	0.439	0.577	0.471			
PE	0.55	0.609	0.46	0.464	0.448	0.588		
SI	0.421	0.534	0.309	0.373	0.361	0.448	0.58	

Source: Calculations done by Authors

### 3.5. Testing hypotheses of the study

The coefficient of multiple regression equation is projected to assess the relationship between the constructs, which include magnitudes of CQ, EE, FC, HM, PE, SI and BI of faculties to use the LMS platform, after the measurement model has been established for reliability and

conducting online classes and other accomplishments. As a result, the H1 hypothesis was adequately supported by the findings. As the value of Beta  $\beta$  is 0.171 and  $p < 0.05$ , Effort expectancy has a substantial positive effect on the behavioural

intention of faculty, indicating that the results support alternative hypothesis H2.

Most of the faculty of higher education institutions is positively influenced due to the support of authorities as during pandemic, administration of educational institutions have also realized the importance of e-learning so, they wish their faculty to incorporate the use of LMS in teaching and provide adequate infrastructural and technological support. Even most open-source LMS are mobile-friendly, so it is easy for faculty to manage from anywhere according to their schedule. So, social influence ( $\beta = 0.182$  and (Value of P)  $< 0.05$ ) and facilitating conditions ( $\beta$  value =  $0.157$  and (Value of P)  $< 0.05$ ) significantly influence the behavioural intention of faculty to use LMS and H3 and H4 are duly supported by the findings.

The authors in this research believe that the behavioural intention of faculty is not only influenced by external factors. Rather most of the respondents feel enjoyment by using LMS in their teaching. They employed an extended UTAUT model by including a construct 'Hedonic Motivation' from the UTAUT-2 model. Most respondents believe that LMS provides the best learning experience to their students, providing them with positive motivation and feeling highly satisfied. Therefore hypothesis H5 is also significant and supported. Hypothesis H6 is related to the construct 'Course Quality'. Most of the faculty in higher educational institutions believe that the learning outcomes of a course in LMS are attainable, and LMS provides academically significant concepts which significantly supports H6 with  $\beta = 0.153$  and p-value  $< 0.05$ . The results show that the behavioural intention of faculty positively influences the

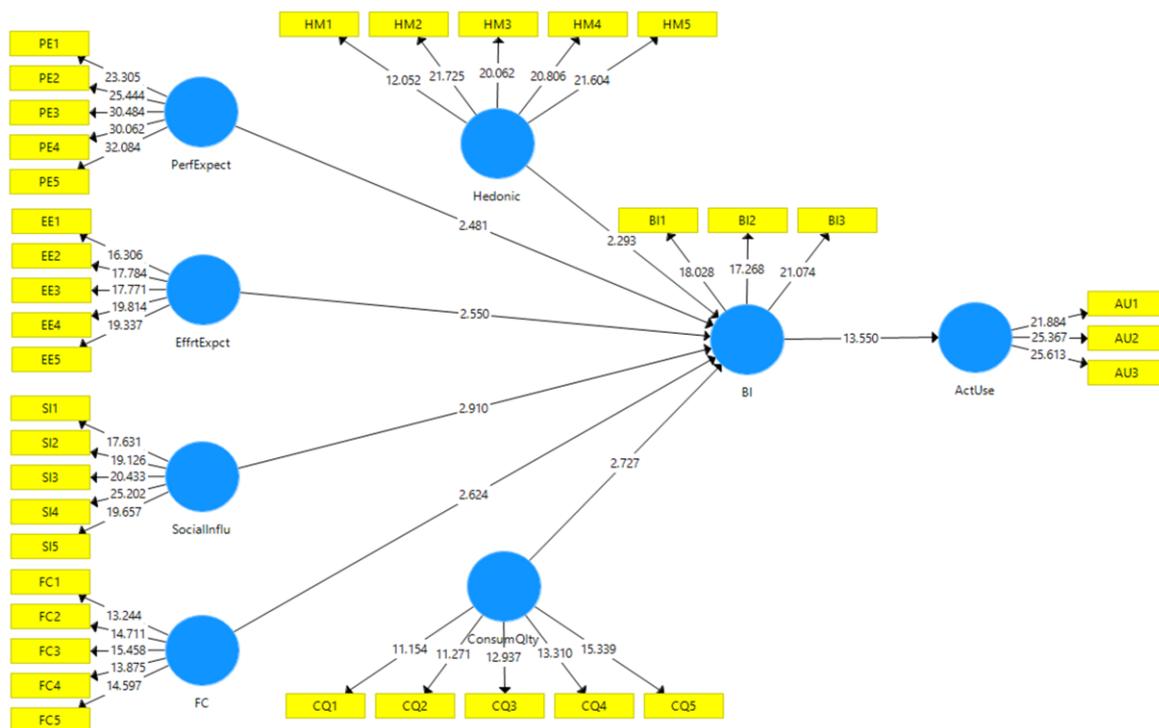


Figure : Structural Equation Model of the study

Table 5: Results of Hypothesis Testing

Hypotheses Testing	Original Sample (O)	Sample Mean (M)	Standard Deviation (SD)	T Statistics ( O/SD)	P-Values	Decision
H1: PE > BI	0.182	0.183	0.074	2.481	0.013	Supported
H2: EE > BI	0.171	0.171	0.067	2.55	0.011	Supported
H3: SI > BI	0.182	0.177	0.062	2.91	0.004	Supported
H4: FC > BI	0.157	0.155	0.06	2.624	0.009	Supported
H5: HM > BI	0.175	0.175	0.076	2.293	0.022	Supported
H6: CC > BI	0.153	0.16	0.056	2.727	0.007	Supported
H7: BI > AU	0.613	0.611	0.045	13.55	0	Supported

actual use of LMS by faculty in higher education institutions. So H7 has also been supported by  $\beta = 0.613$  and  $p\text{-value} = 0$ .

In this study, the model's forecasted capacity was assessed using Stone-Geissers (Q2) cross-validated redundancy, an extensively used procedure in PLS, and a predictive relevance threshold of 7. (Chin, 2010; Hair et al., 2021). The Q-square measures the predictive importance, and the Q-square for this model is displayed in Table-6, demonstrating that it holds a solid predictive ability.

**Table 6: Predictive Power of the Model**  
R squared

	R Square	R Square Adjusted
AU	0.371	0.37
BI	0.568	0.562

Quality of Measurement Model

	SSO	SSE	Q <sup>2</sup> (=1-SSE/SSO)
AU	0.371	0.37	0.605
BI	0.568	0.562	0.365
CQ	2400	986.425	0.589
EE	2400	1080.857	0.55
FC	2400	1178.313	0.509
HM	2400	1051.643	0.562
PE	2400	648.39	0.73
SI	2400	756.148	0.685

Source: Author's Calculation

#### 4. DISCUSSION

The present study has tested an extended UTAUT model regarding the acceptance of LMS by the faculty of higher educational institutions in India. As a result, this study is an addition to the available literature on LMS acceptance. The study confirms that the constructs of the UTAUT model influence the behaviour of faculty to use LMS. The study included two external constructs, 'Hedonic Motivation' and 'Course Quality' and extended UTAUT Model. In the present scenario, no doubt, external environmental concerns influence faculty to be dependent upon online platforms for teaching (Bhatt & Shiva, 2020) but incorporating the use of an LMS, if not a compulsion by the authorities, depends upon the intrinsic motivation of faculty along with external factors. So, it is an important construct to be studied as no particular study in the context of LMS has studied it earlier. The authors' purpose of

incorporating the construct of course quality in their model is that the faculty is also motivated to use LMS as the course outcomes provided via LMS are measurable and the course content becomes academically very important. The hypotheses in this study are tested through PLS-SEM, and the results support all seven hypotheses. PE has a favourable and significant effect on behavioural intention, according to the findings, which are consistent with earlier studies. (Ahmed et al., 2021; Alshehri et al., 2019; Raza et al., 2021a, 2021b). This emphasises the relevance of the e-learning system's helpful capabilities (e.g., receiving assignments, offering valuable learning materials) in improving faculty delivery effectiveness, which raises their intentions to utilise the system on a regular basis. EE has been discovered to be an important predictor of behavioural intention. This suggests that the easier an e-learning platform is to use and requires less effort, the more probable it is that faculty will find it valuable and continue to use it (Ahmed et al., 2021; Al-Adwan et al., 2022; Dwivedi et al., 2019; Raza et al., 2021b). The findings show that faculty believe they will continue to utilise the e-learning system because of the external influence of people they see as important (i.e., professors, peers, and administrators). This means that instructors, administrators, and peers must play an important role in inspiring and motivating faculty to use the e-learning system. (Abdallah et al., 2021; Abdou & Jasimuddin, 2020; Ahmed et al., 2021; Ikhsan et al., 2021). One of the primary enablers of ongoing intentions to use LMS is the idea of facilitating conditions (FC). This conclusion contradicts several prior research, including the original UTAUT, which didn't find it an important factor. (Alshehri et al., 2019; Raza et al., 2021b) but consistent with some others (Abdallah et al., 2021; Abdou & Jasimuddin, 2020; Ahmed et al., 2021) . It suggests that teachers believe the presence of a technological and organisational infrastructure is important in enhancing their intentions to use the e-learning system in the future. Faculty is encouraged to use the e-learning system because of amenities such as technical support, adequate Internet connectivity, and the availability of appropriate gadgets. In one of the earlier research, hedonic motivation is a very strong predictor that affects the users' intention in the context of booking online

tickets of low-cost carriers and players of online games (Wang & Scheepers, 2012). A previous study also considers it essential to impact students' intention to use a teaching platform (Balog & Pribeanu, 2010). The present study confirms the previous results and proves it a significant predictor in affecting behavioural intention towards learning management system also. Confirming the literature results in the context of e-learning, the present study also considers course quality an important variable in affecting the willingness of faculty to use the Learning Management System (Aparicio et al., 2017; Thongsri et al., 2019). Ultimately, the behavioural intention of faculty in higher education institutes significantly influences them to use LMS.

#### **4.1 Theoretical Implications**

The original UTAUT model offered a set of four constructs that influence users' willingness to use a system. Two of the elements in that model, performance and effort expectancy can be thought of as technological or system features, while the other two, facilitating conditions and social influence, can be thought of as organizational aspects that influence users' behavior. A significant omission in the conception of the original UTAUT model is the characteristics of the person who actually uses or intends to use the system. Another crucial issue that is overlooked in the original model is the quality of the course content delivered by the system. By incorporating these two dimensions that influence learning management system adoption, i.e. course quality and hedonic motivation, the current study has made a substantial contribution. As a result, this study sheds light on the most critical elements influencing faculty acceptance of learning management systems in India's higher education institutions. The empirical examination of the research model confirms all the constructs used in the model as valid and significant.

The initial UTAUT model had four moderators (gender, age, experience, and voluntariness), which was a notable divergence from other acceptance and usage models at the time, such as TRA and TAM. Although moderators are useful, they are only appropriate and meaningful when there is sufficient difference in moderators between

persons in the same environment. Individuals coming into touch with a learning management system are assumed to have great leeway in their adoption and usage decisions; however, this is not always the case in situations where authorities in educational institutes have compelled the adoption and use of a learning management system by faculty. In other words, moderators may not be universally applicable to all circumstances, and so are ineffective in present situation. This could be one of the reasons why the majority of the studies in our literature did not incorporate these moderators in their study models. Our research reveals that theorizing on direct impacts missing in the original UTAUT model could be beneficial and significant. Finally, our research provides additional support for those of previous studies which developed their models based on UTAUT and provided related outcomes.

#### **4.2 Practical Implications**

From a practical standpoint, the current study provides useful directions for educational institutions to entice faculty to use LMS. The data shows that faculty performance expectation is an important element in determining whether or not they will use a learning management system. As a result, implementing effective awareness tactics and providing proper training and workshops on the benefits of using LMS is critical to improving faculty perceptions of performance expectancy. The favourable effects of effort anticipation on faculty behavioural intention show that LMS should have user-friendly and simple functions. This will encourage academicians to re-use these systems without being forced to do so. As a result, LMS developers should design user-friendly interfaces and simple processes to lessen the complexity of these systems. Faculty will avoid adopting LMS if they perceive them to be difficult and hard to use for course delivery. Another key factor influencing faculty's decision to utilize an LMS is social influence. Peers, particularly those who have had favourable experiences with LMS, play a crucial role in persuading others to continue using them. The creation of favourable conditions is critical for increasing the use of LMS. As a result, e-learning policy should focus on providing appropriate e-learning infrastructure, proper Internet and computer access, and effective IT technical assistance to

remove barriers to students and instructors using e-learning. LMS developers must concentrate on creating an up-to-date system that will assist faculty in delivering high-quality course content in the form of videos and quizzes that are tailored to learners' abilities. Hedonic motivation was also examined in this study as a significant element influencing teacher desire to employ LMS. As a result, LMS developers should include quality features in their LMS, and educational institutes should encourage and reward their faculty who adopt e-learning systems, so that their entire faculty uses LMS not because they are under pressure from authorities, but because they enjoy delivering their courses and doing other academic work through LMS.

## 5. DIRECTIONS FOR FUTURE RESEARCH

The current research developed a model of the LMS acceptability by faculty of higher education institutions. The study's findings show that basic constructs substantially impact behavioural intention which further impact faculty's decision to use LMS.

However, there are several limitations to this research. First, the study is employed upon only the faculty of higher education institutes; as a result, the findings of this study cannot be applied to all school instructors. Second, the study is conducted in India only, so it gives directions to future scholars on how to implement this extended model in other nations to identify the usage of the Learning Management System there. Third, this study does not include a complete list of factors that may impact faculty's behavioural intention in higher education institutes to use LMS. For example, the impact of the factors like perceived cost and level of awareness may also be studied by future researchers.

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Table 7: Questionnaire

Construct	Question
Performance Expectancy	PE1: I find LMS useful in teaching. PE2: Using LMS helps me to accomplish my tasks very quickly. PE3: Using LMS enhances my productivity. PE4: Using LMS increases chances of getting a rise in my salary. PE5: LMS offers me the ability to track learners' performance.
Effort Expectancy	EE1: LMS is easy to use. EE2: LMS is clear and understandable. EE3: LMS allows me to control the content of my course. EE4: Use of LMS saves my time. EE5: Overall, I find LMS user-friendly.
Social Influence	SI1: My colleagues motivate me to use LMS. SI2: My authorities support the use of LMS in teaching. SI3: Adoption of LMS indicates me to have a better status than those who do not. SI4: My students are capable of using LMS to facilitate their learning in my class. SI5: My students believe that learning through LMS will enhance their academic knowledge.
Facilitating Condition	FC1: I have resources necessary to use LMS. FC2: I have knowledge necessary to use LMS. FC3: The use of LMS does not require the knowledge of any specialised programming language. FC4: My LMS is compatible with existing e- content. FC5: The software of my LMS is mobile friendly.
Hedonic Motivation	HM1: I feel enjoyment in teaching through LMS. HM2: I like to spend more time and efforts on using LMS. HM3: I believe that my online course through LMS delivers best possible learning experience to my students. HM4: My working efficiency has increased with use of LMS. HM5: Overall, I am satisfied by teaching through LMS.
Course Quality	CQ1: The course content helps the learner to achieve the stated learning objectives. CQ2: The course content is up-to date. CQ3: The content in LMS is presented according to learners' abilities and knowledge. CQ4: The content in LMS presents academically significant concepts and models. CQ5: The learning outcomes of the course are measurable and attainable.
Behavioural Intentions	BI1: I intend to continue using LMS. BI2: I will use LMS on regular basis in future. BI3: I will recommend LMS to my colleagues.
Actual Usage	AU1: I use LMS frequently. AU2: I fully depend upon LMS for my teaching. AU3: I use LMS for some specific teaching assignments.

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