

## Extended Abstract

### **Investigating Learner Engagement in Online Learning Platform through Technology Adoption- Application of Unified Theory of Acceptance and Use of Technology (UTAUT).**

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#### **Abstract:**

Engaging and retaining students remains a major issue of online learning despite the massive growth and benefits. The study aims to empirically validate the factors that influence the student's engagement in the online learning platform through the technology adoption framework. Cross-sectional data was collected from 336 learners who have accessed online learning platforms. Data collected was analyzed using Structural Equation Modelling (SEM). The results identified performance expectancy, effort expectancy, facilitating conditions, and self-efficacy as the significant antecedent of behavioral intention and learner engagement in the online learning platform. Behavioral Intention played a fully mediating role in transmitting the effects of performance expectancy, effort expectancy, facilitating conditions, and self-efficacy and partially mediating effect between social influence and learner engagement. The study benefits the researchers, policy framers, academic institutions, and marketers to gain a deeper insight on learners' engagement and suggestions to strengthen it.

**Keywords:** *Online learning, Learner engagement, UTAUT, and retention.*

## **Introduction:**

The process of imparting education has evidenced remarkable transformation mainly due to digital growth. Global changes in education are compelling education systems adaptive to the changes. E-learning is the key element in academic institutions associated with numerous benefits for the various stakeholders such as students, facilitators, and educational institutions (Hixon, Buckenmeyer, Barczyk, Feldman, & Zamojski, 2012; Guo, Xiao, Van Toorn, Lai, & Seo, 2016). The popularity of online courses is demonstrated by the e-learning market growth globally, which is expected to reach 325 billion dollars by 2025. The growth of the e-learning courses is mainly justified due to associative benefits such as ease of use, flexibility, pandemic outbreak, low cost, the surge in internet and smartphones users. Despite the phenomenal growth of the e-learning market, retention of the learners (Liu & Pu, 2020; Ray, Bala, & Dwivedi, 2020a) and engagement continue to be the major issue of concern for academic administrators and instructors (Guo et al., 2016; Erdoğan & Çakıroğlu, 2021; Tani, Gheith, & Papaluca, 2021). Prior studies have posited lower engagement level is attributed to numerous factors; Specifically, lower efficacy levels, lack of infrastructural facilities, low peer influence result in lack of Intention to accept e-learning, causing lower engagement levels. The global outbreak of the pandemic has seriously impacted and compelled academic institutions to consider online learning as the major platform for engaging and imparting education (Deka, 2021). Active engagement of the learner predicts the quality of the online learning platform. However, creating an environment that engages the students and enables them to create high involvement levels and commitment during the learning phase is still a challenge (Guo et al., 2016). Furthermore, earlier studies argue that factors influencing learner engagement in online learning are still unclear, and researchers demand further research to examine the same (Xerri, Radford, & Shacklock, 2018; Wilson, Broughan, & Marselle, 2019; Tani et al., 2021).

Besides, the review of the prior studies indicated that there is no well-established model applied to assess the learner engagement empirically, specifically regarding learners' perception in the technologically mediated learning environment. Considering the issue of lower retention and engagement in online learning platforms, the current study entails focusing on the key predictors of learner engagement in online learning by utilizing the Unified Theory of Acceptance and Use of

Technology Model (UTAUT). Second, the researchers aimed at testing the intermediate relationship between the antecedents and learner engagement when mediated through behavioral Intention. This would help the researchers to address the issue of lower retention and engagement in online learning platforms. The study outcome not only benefits the researchers to gain a deeper insight on learners' engagement but also offers the suggestion to strengthen it. However, the results can be used by academic institutions and e-learning marketers to identify the beliefs that influence and predict engagement in the e-learning platform. Additionally, the study's findings contribute to the existing body of knowledge by extending the UTAUT model introducing self-efficacy as a construct, and studying learner engagement as an outcome that was not priorly studied in the literature. The implications for e-learners, e-learning marketers, and academic institutions are proposed based on the results and findings.

### **Online learning and Learner Engagement:**

In the era of digital and online environments, and growth in 'interactive multimedia' has successfully gained the attention of educational researchers to understand the factors influencing engagement. However, learner engagement is poorly defined and studied in the context of online learning (Kennedy, 2020). Coates (2006) defines engagement as encompassing "The active and collaborative learning, participation in challenging academic activities, formative communication with academic staff, involvement in enriching educational experiences, and feeling legitimated and supported by university learning communities." Engagement refers to the learner's participation with the study materials, peers, and instructor in an online learning environment. The active engagement has a substantial impact on the learner's outcome, like completion of the course, student achievement, student persistence, and course satisfaction (Dumford & Miller, 2018). Prior seminal studies have focussed on exploring the impact of adopting the latest digital technologies for the attainment of education and learning outcomes (Kennedy,2020; Deka, 2021), but relatively little is known about how technology-enhanced learning impacts learner engagement, a majority of the prior research explored learner engagement in traditional face to face settings. A few studies have suggested that technology-aided learning has improved student engagement; however, learners' effort for active engagement is equally essential (Al-Bogami & Elyas, 2020; Bond et al., 2020). Understanding the engagement levels in the online courses is significant, as

the higher level of engagement is associated with the higher course completion rate and accurate parameter for the instructors to design the potential e-learning curriculum (Al-Bogami & Elyas, 2020; Bond et al.,2020). Given these previous findings, the current study entails investigating the learner's engagement who access the learning content through online learning platforms. The learner engagement construct is often studied as the multidimensional construct by Deng, Benckendorff, & Gannaway (2019), which constitutes behavioral, social, cognitive, and emotional engagement. Therefore, the study addresses the gap by conceptualizing learner engagement as the multidimensional construct structured by Deng et al., (2019). Behavioral engagement is linked with detectable actions and the learner's level of involvement in the learning activities. Social engagement focuses on the interaction of the learner with the instructors and other learners. Cognitive engagement is associated with an intellectual investment to gain proficiency over complex concepts and apprehend convoluted ideas. Emotional engagement explains the learner's emotional association with the study contents, peers, instructors, and the organization (Al-Bogami & Elyas, 2020; Bond et al.,2020).

### **Research Hypothesis:**

H1: Performance expectancy has a significant influence on the learner intention to use e-learning.

H1a: Performance expectancy has a significant influence on learner engagement behavior.

H2: Effort expectancy has a significant influence on the learner intention to use e-learning.

H2a: Effort expectancy has a significant influence on learner engagement behavior.

H3: Social influence has a significant influence on the learner intention to use e-learning.

H3a: Social Influence has a significant influence on the learner engagement behavior.

H4: Facilitating conditions has a significant influence on learner intention to use e-learning.

H4a: Facilitating conditions has a significant influence on the learner engagement behavior.

H5: Self-efficacy has a significant influence on learner intention to use e-learning.

H5a: Self- efficacy -has a significant influence on the learner engagement behavior.

H6: Behavioural Intention has a significant influence on the learner engagement behavior.

H7: Behavioral Intention significantly mediates the relationship between performance expectancy, effort expectancy, social influence, facilitating conditions, self-efficacy, and learner engagement behavior of learners to use e-learning platforms.

### **Methodology:**

The study was conducted within the embedded framework of quantitative research. An online questionnaire-based survey was designed based on prior literature. Respondents were invited through email, and a total of 336 respondents' data was collected from the graduate and the undergraduate students having prior experience of using the online learning platform. All the measurement scales for the study were adapted from the prior literature that was validated. All the constructs were measured using multiple items of a seven-point Likert scale ranging between "strongly disagree" and "strongly agree." The data collected were analyzed using partial least squares- structural equation modeling (PLS-SEM) with SmartPLSV3.0 software.

### **Results:**

**Table 1- Demographic profile.**

<b>Demographics</b>		<b>N</b>	<b>Percentage</b>
<b>Age</b>	Below 20	74	22.02
	Between 20 and Below 23	203	60.42
	23 and above.	59	17.56
<b>Gender</b>	Male	141	41.96
	Female	195	58.04
<b>Year of Study</b>	First-year	96	28.57
	Second-year	184	54.76
	Third year	56	16.67
<b>Course Specialisation</b>	B. Com	79	23.51
	BBM	102	30.36
	M.Com	104	30.95
	MBA	51	15.18
<b>Prior Experience</b>	Less than one year	66	19.64
	1-2 years	106	31.55
	3-4 years	95	28.27

	5-6 years	43	12.80
	7-8 years	3	0.89
	8 years and above	1	0.30
	Not at all	22	6.55

Table 1 lists the demographical information for the sample group. There were 141 males (41.96%) and 195 females (58.04%). More than half (60.42%) of the learners were in the age range between 20 and below 23, followed by below 20 (22.02%) and 23 and above (17.56%). Most of the respondents were in the second year (54.76%) of their studies. Participating learners were from the following course specialization: M. Com (30.95%); BBM (30.36%); B. Com (23.51%) and MBA (15.18%). Most of the learners had extensive experience ranging between less than a year to 6 years (92.26%).

**Table 2: Measurement model:**

<b>Construct</b>	<b>Items</b>	<b>Mean</b>	<b>Factor Loading</b>	<b>Cronbach's Alpha</b>	<b>AVE</b>	<b>Composite Reliability</b>
Performance Expectancy	PE1	4.664	0.924	<b>0.926</b>	<b>0.872</b>	<b>0.953</b>
	PE2	4.708	0.941			
	PE3	4.833	0.935			
Effort Expectancy	EE1	4.801	0.889	<b>0.871</b>	<b>0.794</b>	<b>0.920</b>
	EE2	4.967	0.917			
	EE3	5.08	0.866			
Social Influence	SI1	4.821	0.806	<b>0.851</b>	<b>0.769</b>	<b>0.909</b>
	SI2	4.58	0.917			
	SI3	4.56	0.903			
Facilitating Conditions	FC1	4.958	0.847	<b>0.867</b>	<b>0.714</b>	<b>0.909</b>
	FC2	5.03	0.872			
	FC3	4.753	0.836			
	FC4	4.839	0.825			
Self-efficacy	SI1	4.342	0.900	<b>0.891</b>	<b>0.820</b>	<b>0.932</b>
	SI2	4.494	0.926			
	SI3	4.714	0.891			
Behavioral Intention	BI1	4.943	0.913	<b>0.898</b>	<b>0.831</b>	<b>0.936</b>
	BI2	4.893	0.924			
	BI3	5.042	0.898			
Learning Engagement	LE 1	4.229	0.736			

	LE 2	4.497	0.795	<b>0.927</b>	<b>0.628</b>	<b>0.938</b>
	LE 3	4.577	0.825			
	LE 4	4.768	0.835			
	LE 5	4.878	0.799			
	LE 6	4.902	0.780			
	LE 7	4.783	0.736			
	LE 8	4.765	0.821			
	LE 9	4.631	0.799			
	LE 10*	4.262	0.589*			
	LE 11*	4.208	0.606*			
	LE 12*	4.229	0.548*			

The quality of the research model was analyzed by examining the internal consistency, convergent, and discriminant validity (Table 2). The majority of the factor loadings for the respective construct above 0.70 were considered. Composite reliability for the constructs ranged above 0.7, and AVE values ranged from 0.628 to 0.872 (AVE >0.5). Discriminant validity (Table 3) was supported as the square root of AVE for the construct was more significant than the correlation with other constructs.

**Table 3- Discriminant Validity**

<b>Construct</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
Behavioral Intention (1)	<b>0.912</b>						
Effort Expectancy (2)	0.609	<b>0.891</b>					
Facilitating Conditions (3)	0.593	0.624	<b>0.845</b>				
Learner Engagement (4)	0.552	0.532	0.555	<b>0.792</b>			
Performance Expectancy (5)	0.585	0.549	0.598	0.585	<b>0.934</b>		
Self-efficacy (6)	0.567	0.525	0.473	0.524	0.582	<b>0.906</b>	
Social Influence (7)	0.447	0.572	0.595	0.448	0.459	0.478	<b>0.877</b>

**Structural Model: Table 4- Summary of results – Hypothesis testing.**

<b>Path</b>	<b>Path Coefficients</b>	<b>t Values</b>	<b>p values</b>	<b>Significance</b>	<b>R<sup>2</sup></b>
Performance Expectancy -> Behavioural Intention	0.184	2.746	0.006*	Significant	0.519
Performance Expectancy -> Learner Engagement	0.245	3.562	0.000***	Significant	
Effort Expectancy -> Behavioural Intention	0.263	3.594	0.000***	Significant	
Effort Expectancy -> Learner Engagement	0.103	1.454	0.146	Not Significant	
Social Influence -> Behavioural Intention	-0.035	0.556	0.579	Not Significant	

Social Influence -> Learner Engagement	0.042	0.663	0.507	Not Significant	
Facilitating Conditions -> Behavioural Intention	0.231	3.349	0.001*	Significant	0.468
Facilitating Conditions -> Learner Engagement	0.162	2.518	0.012*	Significant	
Self-efficacy -> Behavioural Intention	0.229	2.966	0.003*	Significant	
Self-efficacy -> Learner Engagement	0.152	2.325	0.020*	Significant	
Behavioural Intention -> Learner Engagement	0.146	1.838	0.063**	Significant	

Notes \*\*\* $p < 0.001$ , \* $p < 0.05$ , \*\* $p < 0.10$

Table 4 summarizes the structural model, and results of hypothesis, hypothesis H1, H1a, H2, H4, H4a, H5, H5a, H6 were supported by the empirical data. While H2a, H3, and H3a were rejected. The results showed performance expectancy, effort expectancy, facilitating conditions, self-efficacy has significant influence on behavioral intention ( $\beta=0.184$ ,  $P < 0.05$ ), ( $\beta=0.245$ ,  $P < 0.001$ ), ( $\beta=0.263$ ,  $P < 0.001$ ) ( $\beta=0.231$ ,  $P < 0.05$ ) ( $\beta=0.162$ ,  $P < 0.05$ ) ( $\beta=0.229$ ,  $P < 0.05$ ), ( $\beta=0.152$ ,  $P < 0.05$ ), ( $\beta=0.146$ ,  $P < 0.10$ ) respectively. However, Social influence had an insignificant effect on behavioral Intention ( $\beta=-0.035$ ,  $P=0.579$ ) and learner engagement ( $\beta=-0.042$ ,  $P=0.507$ ). The results showed performance expectancy, facilitating conditions, self-efficacy, and behavioral Intention has a significant influence on learner engagement ( $\beta=0.245$ ,  $P < 0.001$ ), ( $\beta=0.162$ ,  $P < 0.001$ ), ( $\beta=0.152$ ,  $P < 0.05$ ) ( $\beta=0.146$ ,  $P < 0.10$ ). Finally, effort expectancy and social influence had an insignificant effect on learner engagement; hence, H2a and H3 are rejected. The R2 value for Behavioural intention and Learner engagement ranged between 0.468 and 0.519. Therefore, these constructs reflect moderate predictability.

**Table 5- Mediating effect of behavioral Intention.**

	Performance Expectancy (PE)	Effort Expectancy (EE)	Social Influence (SI)	Facilitating Conditions (FC)	Self-efficacy (SE)	Behavioral Intention (BI)
<b>Standardized Total Effects:</b>						
Behavioral Intention	0.184	0.263	-0.035	0.231	0.229	0.000
Learner Engagement (LE)	0.272	0.141	0.036	0.195	0.185	0.146
<b>Standardized Direct Effects:</b>						
Behavioral Intention	0.184	0.263	-0.035	0.231	0.229	0.000
Learner Engagement	0.245	0.103	0.042	0.162	0.152	0.146



<b>Standardized Indirect Effects:</b>						
Behavioral Intention	0.000	0.000	0.000	0.000	0.000	0.000
Learner Engagement	0.027	0.038	-0.006	0.033	0.033	0.000

The results in table 5 represent the summary of the mediation hypothesis tested. The results reveal the full mediation effect of behavioral intention in the relationships between performance expectancy, effort expectancy, facilitating conditions, and self-efficacy and partially mediation between social influence and learner engagement. Mediation effect was found "when values for the standardized total effect and standardized direct effect of a predictor variable on the criterion variable are different."

**Conclusion:**

Considering the fact majority of the institutions use e-learning platforms and invest a significant amount for effective use and facilitate the learning process (Al-Fraihat, Joy, Masa'deh, & Sinclair, 2020). The study aimed to examine the factors that influence learner engagement in e-learning platforms and to study the mediating effect of behavioral Intention between PE, EE, SI, FC, SE, and Learner engagement. The study results provide insights on the critical issues and recommendations that should be considered for improving the perception of Intention and learner engagement while using online learning platforms. With due concern to the fact that the majority of institutions are relying on online courses, the study results emphasize the need to systematically evaluate students' Intention for persistent improvements and address the problems and underperformances. The study results reveal factors such as PE, EE, SI, FC, SE positively influence Intention to use and foster learners to be more engaged in their learning activity. Therefore, more effort should be directed toward effectively utilizing tools to exploit online learning to the fullest capacity.

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