

Determinants of LMS Continuance Intention: An Extended UTAUT Approach

Ngakan Nyoman Kutha Krisnawijaya ^{1*}, Ni Made Dhian Rani Yulianti ², Ni Putu Dhanan Kumaradewi M ³, Anak Agung Adi Wiryya Putra ⁴

^{1*,4} Information Technology Study Program, Faculty of Engineering and Informatics, Universitas Pendidikan Nasional, Denpasar City, Bali Province, Indonesia

^{2,3} Management Study Program, Faculty of Economics and Business, Universitas Pendidikan Nasional, Denpasar City, Bali Province, Indonesia

Email: ngakankutha@undiknas.ac.id ^{1*}, dhianrani@undiknas.ac.id ², dhanankumaradewi@undiknas.ac.id ³, adiwiryya@undiknas.ac.id ⁴

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Abstract

This study aims to analyze the factors influencing user satisfaction and continuance intention of Learning Management Systems (LMS) among international students in a mandatory academic ecosystem. This study has significant significance in bridging the theoretical gap between the cognitive adoption model (UTAUT) and the affective post-adoption evaluation (ECM) in a tech-savvy cross-cultural user segment. Using a causal-associative quantitative design, data were collected through a structured online questionnaire from 71 International Undergraduate Program (IUP) student respondents selected through a purposive sampling method. Data analysis was conducted using the Partial Least Squares–Structural Equation Modeling (PLS-SEM) method with the assistance of SmartPLS software version 4.0. The results of the path analysis showed that effort expectancy and social influence had a positive and significant effect on satisfaction, while performance expectancy and facilitating conditions did not show a significant effect. Furthermore, satisfaction was proven to exclusively mediate the effect of effort expectancy on continuance intention of LMS. The implications of this research confirm that in institutionally mandated systems, user motivation shifts to academic compliance. Therefore, higher education institutions are advised to prioritize eliminating everyday technical barriers through intuitive interface design to foster genuine international student satisfaction.

Keywords:

Learning Management System; UTAUT; User Satisfaction; Continuation Intention; International Students.

1. INTRODUCTION

Information technology is reshaping higher education, with tools such as Virtual Reality (VR), digital libraries, and Learning Management Systems (LMS) designed to align with students' learning needs and foster motivation. During the COVID-19 era, LMS adoption accelerated and catalyzed a transition from conventional to modern online education (Batucan et al., 2022). Consequently, platforms such as Moodle, Canvas, and Blackboard are no longer merely repositories for course materials but comprehensive ecosystems that enable instruction, assessment, and collaborative learning (Abbad, 2021). In this landscape, the key institutional metric has shifted from whether users adopt an LMS to whether they sustain its use over time (Patil and Undale, 2023). Yet many institutions observe engagement drop-offs when mandatory policies are relaxed, as students log in only when required and rarely explore advanced features, indicating that technical availability alone does not guarantee effective learning outcomes (Patil and Undale, 2023). Understanding behavioral intention is therefore crucial because it predicts consistent, voluntary LMS use beyond initial acceptance; in particular, post-adoption constructs such as reuse or continuance intention (CI) capture whether students will keep using the system in future courses.

A widely used framework for explaining technology acceptance and use is the Unified Theory of Acceptance and Use of Technology (UTAUT) (Abbad, 2021; Batucan et al., 2022). UTAUT synthesizes prior behavioral models and posits four core determinants of adoption and usage: performance expectancy, effort expectancy, social influence, and facilitating conditions (Raza et al., 2021). Developed by Venkatesh et al. (2003) through a synthesis of eight earlier models, TRA, TAM, the Motivational Model, TPB, a combined TAM–TPB, the Model of PC Utilization, Innovation Diffusion Theory, and Social Cognitive Theory, UTAUT explains up to 70% of the variance in usage intention, outperforming its predecessors (Venkatesh et al., 2003). Performance expectancy is the belief that using a system will help users achieve benefits in their activities; effort expectancy is the perceived ease of use; social influence reflects perceived expectations of important others; and facilitating conditions denote the perceived availability of technical and organizational support (Venkatesh et al., 2003). In LMS research, these constructs have been modeled as antecedents of satisfaction and usage outcomes (Al-Fraihat et al., 2020; Cidral et al., 2018).

To explain sustained use, we integrate UTAUT with the Expectation-Confirmation Model (ECM). Bhattacharjee (2001), adapting Oliver's (1980) Expectation-Confirmation Theory to information systems, argued that continuance intention is driven more by post-adoption experience than initial beliefs. ECM centers on perceived usefulness after actual use, confirmation of initial expectations, and satisfaction, an affective response shaped by the interplay between confirmation and perceived usefulness; satisfaction then serves as the primary mediator linking cognition to continuance intention (Bhattacharjee, 2001). Prior e-learning research supports this mechanism, showing that satisfaction is a dominant predictor of continuance intention (Chiu et al., 2005; Roca et al., 2006; Alraimi et al., 2015). In this study, we adopt the four UTAUT constructs as independent variables influencing student satisfaction with LMS use, consistent with prior e-learning work (Al-Fraihat et al., 2020; Cidral et al., 2018), and position satisfaction, following ECM, as the mediator transmitting these effects to CI (Roca et al., 2006; Chiu et al., 2005).

The extended model is especially relevant for international students who navigate transitional, cultural, and linguistic challenges. In multicultural contexts, technology acceptance is shaped not only by cognitive appraisals but also by social influence (Al-Mamary et al., 2023; Al-Rahmi et al., 2021; Suh & Kim, 2020). International students often rely on cues from instructors, academic staff, and peers to adapt to host-university norms (Sitaram & Sukanya, 2022). Visible endorsement of the LMS by the academic community creates a social norm that reduces uncertainty and supports socio-academic integration (Al-Rahmi et al., 2021; Suh & Kim, 2020). However, because LMS use is often mandatory, social compliance alone may not secure long-term alignment with students' high baseline technological expectations (Chan et al., 2021). Incorporating satisfaction as a mediating affective mechanism is therefore vital to explain how social norms, functional performance, usability, and support conditions translate into a genuine, sustained commitment to reuse the system rather than mere compliance (Chan et al., 2021).

Performance expectancy is defined as the extent to which users believe that using a system will help them achieve benefits in their activities (Venkatesh et al., 2003). In LMS contexts, it captures students' beliefs that the system enhances learning effectiveness, facilitates access to materials, and supports academic achievement. Given that user satisfaction, an affective response to system experience (Doll & Torkzadeh, 1988) is closely tied to perceived benefits, and conceptually aligns with TAM's perceived usefulness (Davis, 1989), prior work shows a positive relationship between performance expectancy and satisfaction: students who experience tangible benefits such as easier content access, efficient communication, and academic support tend to be more satisfied (Cidral et al., 2018; Al-Fraihat et al., 2020). H1: Performance expectancy positively affects student satisfaction with LMS use.

Effort expectancy refers to the degree of ease associated with using the system (Venkatesh et al., 2003). In LMS use, perceived ease in operating the platform, navigating features, and completing academic tasks reduces cognitive load and fosters comfort, yielding more positive affective evaluations (Venkatesh et al., 2012). Echoing TAM's perceived ease-of-use pathway to satisfaction and acceptance (Davis, 1989), e-learning studies consistently link ease of use with higher satisfaction (Aparicio et al., 2017; Al-Fraihat et al., 2020). H2: Effort expectancy positively affects student satisfaction with LMS use.

Social influence is the extent to which individuals perceive that important others believe they should use a technology (Venkatesh et al., 2003). In LMS settings, expectations from lecturers, peers, and institutions can shape positive attitudes through social identity and conformity processes, thereby improving affective evaluations and satisfaction (Venkatesh et al., 2012). Empirical evidence indicates that social influence from the academic environment enhances acceptance and satisfaction with e-learning systems (Teo, 2011; Al-Fraihat et al., 2020), and that normative LMS use increases students' sense of legitimacy and comfort (Mailizar et al., 2021). H3: Social influence positively affects student satisfaction with LMS use.

Facilitating conditions are the perceived availability of the technical and organizational infrastructure necessary to support system use (Venkatesh et al., 2003). For LMSs, these include device access, reliable internet connectivity, institutional technical support, and user training. Adequate support improves person–environment fit, reduces frustration, and directly contributes to more positive user experiences, thereby raising satisfaction (Venkatesh et al., 2003; Teo, 2011). Studies report that technical support and infrastructure quality positively and significantly affect LMS satisfaction (Cidral et al., 2018; Al-Fraihat et

al., 2020), while lack of access and connectivity is a salient source of dissatisfaction (Nikolopoulou et al., 2021). H4: Facilitating conditions positively affect student satisfaction with LMS use.

Continuance intention (CI) is users' desire to continue using a technology after initial experience (Bhattacharjee, 2001). In LMS contexts, CI reflects students' tendency to keep using the platform throughout their studies. ECM posits that satisfaction is the primary predictor of CI: when students feel satisfied with functionality, ease, and benefits, they are more likely to continue; dissatisfaction, in contrast, undermines reuse (Bhattacharjee, 2001). E-learning research corroborates satisfaction as the dominant driver of CI (Chiu et al., 2005; Roca et al., 2006; Alraimi et al., 2015). H5: Satisfaction positively and significantly affects students' continuance intention to use the LMS.

Finally, following the integrated UTAUT–ECM perspective, we position satisfaction as the mediating mechanism that links UTAUT antecedents to CI. Rather than directly determining CI, performance expectancy, effort expectancy, social influence, and facilitating conditions first shape affective evaluations which then drive long-term use decisions (Bhattacharjee, 2001; Roca et al., 2006). H6: Satisfaction mediates the relationship between performance expectancy and CI. H7: Satisfaction mediates the relationship between effort expectancy and CI. H8: Satisfaction mediates the relationship between social influence and CI. H9: Satisfaction mediates the relationship between facilitating conditions and CI.

2. RESEARCH METHOD

This quantitative study was designed as a causal-associative study to examine the cause-and-effect relationship between variables, using non-probability sampling via purposive sampling. The population for this study consisted of all active students in the International Undergraduate Program (IUP) at the National University of Education, totaling 136 students from three active cohorts. The specific sampling criteria focused on first- and second-year students, considering that this group has the highest level of interaction within the regular academic ecosystem on campus during the study period; meanwhile, final-semester students were excluded due to limited accessibility resulting from participation in internship programs, study abroad, or the preparation of their final theses. Based on these criteria, a sample of 71 active and valid respondents was obtained. This sample size is deemed valid and meets the methodological requirements of the research based on Roscoe's (1975 in Sekaran & Bougie, 2016) rule of thumb, which sets the threshold for a valid sample between 30 and 500 subjects. This is further supported by the homogeneous nature of the IUP student population, making this sample size considered robust enough to represent the phenomenon under study.

Primary data were obtained through structured questionnaires distributed online using Google Forms. All measurement items were rated using a five-point Likert scale, with response options ranging from strongly disagree (1) to strongly agree (5) (Likert, 1932). The research instrument was developed based on constructs within the Unified Theory of Acceptance and Use of Technology (UTAUT) model (Venkatesh et al., 2003) and the Expectation-Confirmation Model (ECM) (Bhattacharjee, 2001), which include Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Use Satisfaction, and Continuance Intention.

Data analysis was conducted using Partial Least Squares–Structural Equation Modeling (PLS-SEM) with the help of SmartPLS 4.0 software. The PLS-SEM method was chosen because it is suitable for predictive research models, relatively small sample sizes, and data distributions that do not need to meet normality assumptions (Hair et al., 2022). The analysis was performed in two stages. First, the outer model was evaluated to test the validity and reliability of the constructs. First, outer loadings are examined to ensure that each indicator adequately represented its latent variable (with loadings ≥ 0.70 considered acceptable). Cronbach's Alpha and Composite Reliability are assessed to ensure internal consistency reliability which indicate the stability and consistency of the measurement items. Average Variance Extracted (AVE) is evaluated to ensure convergent validity, where values above 0.50 demonstrate that the construct explains more than half of the variance of its indicators. Finally, discriminant validity is assessed using the Fornell-Larcker criterion, ensuring that each construct is empirically distinct from others (Hair et al., 2022). Second, the inner model was analyzed to test the hypothesized relationships between variables through path coefficient analysis, coefficient of determination (R^2) to assess the explanatory power of the model, effect size (f^2), predictive relevance (Q^2), and significance testing of hypotheses based on t-statistics and p-values obtained via bootstrapping procedures (Hair et al., 2022).

3. RESULTS AND DISCUSSION

The study population consisted of active students in the international class of the Management Study Program who used the LMS as part of their academic activities. The questionnaire was distributed online via Google Forms to second-semester and fourth-semester students. Out of 84 questionnaires distributed, 71 respondents provided valid answers that could be used for further analysis.

Based on the analysis of respondent characteristics, all respondents were in the age range of 18–24 years. In terms of gender, 40 respondents were male (56.3%) and 31 respondents were female (43.7%).

Table 1. Respondent Characteristics

Characteristics	Number (n)	Percentage (%)
Gender		
Male	40	56,3
Female	31	43,7
Age		
18–24 years old	71	100

3.1. Measurement

The measurement items used in this study were adapted from established and validated instruments in previous studies. Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Satisfaction, and Continuance Intention were measured using multiple indicators to capture each construct comprehensively.

All questionnaire items were assessed using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The complete list of measurement items for each construct is presented in Table 2.

Table 2. Statement Indicators

No	Variable	Measurement question items	References
1	Performance Expectancy (PE)	I find LMS useful in my learning Using LMS enables me to accomplish learning activities more quickly Using LMS increases my learning productivity If I use LMS, I will increase my chances of getting a better mark in the courses	Venkatesh and Davis (2003)
2	Effort Expectancy (EE)	My interaction with LMS is clear and understandable I am skilful at using LMS Learning to use LMS is easy for me I find it easy to get LMS to do what I want it to do	Venkatesh and Davis (2003)
3	Social Influence (SI)	People who are important to me think that I should use LMS People who influence my behaviour think I should use LMS The seniors in my college are helpful in the use of LMS In general, the university has supported the use of LMS	Venkatesh and Davis (2003)
4	Facilitating Conditions (FC)	I have the resources necessary to use LMS I have the knowledge necessary to use LMS LMS is compatible with the other systems I use A specific person (or group) is available for assistance with LMS difficulties	Venkatesh and Davis (2003)
5	Satisfaction (S)	I am generally pleased with the use of the LMS in the learning process. The LMS meets my expectations for supporting my learning activities I am happy with using the LMS during the learning process I am satisfied with the way the LMS facilitates the learning process Overall, I am satisfied with my experience of using the LMS in the learning process	Anderson and Srinivasan (2003); Wang, Tseng et al. (2019); Lee and Chung (2009); Alalawan, A.A. (2020)
6	Continuance Intention (CI)	I intend to continue using the LMS in the future for my learning activities I will always try to use the LMS as part of my daily academic activities I plan to continue using the LMS frequently in	Venkatesh et al. (2012); Alalawan, A.A. (2020)

the future

3.2. Outer Model Analysis

Based on the initial measurement model assessment, one indicator from the Facilitating Conditions construct was excluded from the model because its outer loading fell below the 0.70 threshold. Following this elimination, as shown in Table 3, all remaining indicators exhibit outer loadings above 0.70, ranging from 0.722 to 0.960. As per Hair et al. (2022), indicators with outer loadings exceeding 0.70 are considered to have satisfactory convergent validity. Consequently, the retained indicators for Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Satisfaction, and Continuance Intention are validated and appropriate for further analysis.

Table 3. Outer Loadings

Constructs	Indicator	Outer Loading
Performance Expectancy	PE1	0,928
	PE2	0,938
	PE3	0,876
	PE4	0,771
Effort Expectancy	EE1	0,850
	EE2	0,824
	EE3	0,864
	EE4	0,888
Social Influence	SI1	0,941
	SI2	0,909
	SI3	0,747
	SI4	0,728
Facilitating Conditions	FC1	0,838
	FC2	0,839
	FC3	0,840
Satisfaction	S1	0,870
	S2	0,874
	S3	0,872
	S4	0,937
	S5	0,722
Continuance Intention	CI1	0,946
	CI2	0,960
	CI3	0,939

Source: Data Processing Using SmartPLS 4 (2026)

Table 4. Cronbach Alpha, Composite Reliability, AVE

Variabel	Cronbach Alpha	Composite Reliability	AVE
Performance Expectancy (PE)	0,904	0,932	0,776
Effort Expectancy (EE)	0,885	0,917	0,734
Social Influence (SI)	0,853	0,902	0,7
Facilitating Conditions (FC)	0,804	0,877	0,704
Satisfaction (S)	0,909	0,933	0,736
Continuance Intention (CI)	0,944	0,964	0,900

Source: Data Processing Using SmartPLS 4 (2026)

Based on Table 4, all constructs have Cronbach's Alpha and Composite Reliability values above 0.70, thus meeting the reliability criteria. The Cronbach's Alpha values range from 0.804 to 0.944, while Composite Reliability values range from 0.877 to 0.964. Additionally, all constructs have Average Variance Extracted (AVE) values above 0.50, ranging from 0.700 to 0.900. According to Hair et al. (2022), a Composite Reliability value > 0.70 indicates good reliability, while an AVE > 0.50 indicates that the construct has met convergent validity. Therefore, all research variables, Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Satisfaction, and Continuance Intention, are declared reliable and valid for use in further analysis.

Table 5. Criteria Fornell-Larcker

Variabels	CI	EE	FC	PE	S	SI
CI	0,948					
EE	0,478	0,857				
FC	0,539	0,623	0,839			
PE	0,667	0,474	0,483	0,881		
S	0,669	0,643	0,666	0,694	0,858	
SI	0,652	0,335	0,614	0,726	0,696	0,837

Source: Data Processing Using SmartPLS 4 (2026)

Based on Table 5, all the square root values of AVE (the diagonal values in bold) are greater than the correlations between other constructs in the same row and column. According to the Fornell-Larcker criterion, a construct is considered to meet discriminant validity if the square root of AVE is higher than its correlation with other constructs. Therefore, all constructs in this study, Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Satisfaction, and Continuance Intention, have met the discriminant validity criteria and are able to distinguish themselves well from other constructs.

3.3. Inner Model Analysis

Based on Table 6, the Effort Expectancy variable has the greatest influence on Satisfaction with a path coefficient value of 0.334, followed by Social Influence at 0.330, Performance Expectancy at 0.225, and Facilitating Conditions at 0.147. Next, Satisfaction has a positive effect on Continuance Intention with a path coefficient value of 0.669. The positive coefficient value indicates that an increase in the independent variable will improve the dependent variable it influences. Therefore, the higher the user satisfaction level, the greater their intention to continue using the system in the future.

Table 6. Path Coefficient

Variabels	S	CI
PE	0,225	
EE	0,334	
SI	0,33	
FC	0,147	
SI		0,669

Source: Data Processing Using SmartPLS 4 (2026)

Table 7. Coefficient of Determination

Variabels	R-Square	R-Square Adjusted
Satisfaction	0,699	0,665
Continuance Intention	0,448	0,434

Source: Data Processing Using SmartPLS 4 (2026)

According to Table 7, the Satisfaction variable shows an R-Square of 0.699 and an Adjusted R-Square of 0.665. This suggests that Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions collectively account for 69.9% of the variation in Satisfaction, with the remaining 30.1% attributable to other factors outside the model. Additionally, the Continuance Intention variable has an R-Square of 0.448 and an Adjusted R-Square of 0.434. These figures indicate that Satisfaction explains 44.8% of the variation in Continuance Intention, while 55.2% is explained by other variables not included in this study. Overall, the model demonstrates a moderate to strong capacity to explain Satisfaction and a moderate explanation level for Continuance Intention.

Table 8. Effect Size

Variables Relationship	f ²	Category
Performance Expectancy → Satisfaction	0,068	Small
Effort Expectancy → Satisfaction	0,192	Medium
Social Influence → Satisfaction	0,125	Small
Facilitating Conditions → Satisfaction	0,03	Small
Satisfaction → Continuance Intention	0,811	Large

Source: Data Processing Using SmartPLS 4 (2026)

Based on Table 8, the Satisfaction variable has the greatest influence on Continuance Intention with an f² value of 0.811, which falls into the large effect category. Next, Effort Expectancy has a moderate (medium) effect on Satisfaction with an f² value of 0.192. Meanwhile, Performance Expectancy (0.068), Social Influence (0.125), and Facilitating Conditions (0.030) have small effect categories on Satisfaction.

Table 9. Predictive Relevance (Q²)

Endogenous Variable	Q ² Predict
Satisfaction	0,361
Continuance Intention	0,341

Based on Table 9, the Satisfaction construct has a Q² Predict value of 0.361, while C Continuance Intention has a Q² Predict value of 0.341. Since all Q² Predict values are greater than zero, the model demonstrates adequate predictive relevance. These results indicate that the research model is capable of predicting the endogenous constructs included in the study.

According to Hair et al. (2022), a Q² value greater than zero indicates that the model has predictive relevance, while higher values reflect stronger predictive capability. Therefore, the findings suggest that the proposed model possesses a moderate level of predictive relevance in explaining and predicting both Satisfaction and Continuance Intention.

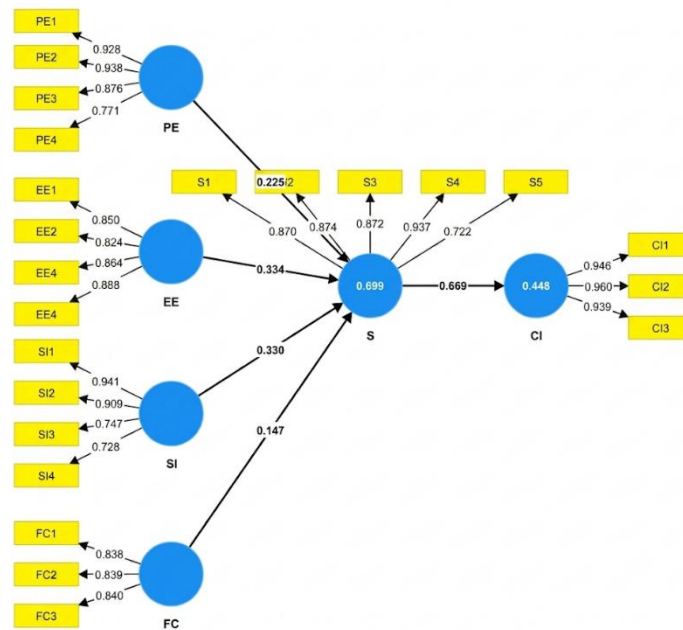


Figure 1. PLS-SEM Hypothesis Testing Results Model. Source: PLS-SEM

3.4. Direct Effects Hypothesis

Table 10. Effects of the Direct Hypothesis

Hipotesis	Original Sample	Average Sample	Standard Deviation	T Statistics	P Value	Results
H1: Performance Expectancy → Satisfaction	0,225	0,206	0,172	1,307	0,096	Not Supported
H2: Effort Expectancy → Satisfaction	0,334	0,33	0,142	2,36	0,009	Supported
H3: Social Influence → Satisfaction	0,33	0,293	0,183	1,8	0,036	Supported
H4: Facilitating Conditions → Satisfaction	0,147	0,198	0,166	0,884	0,188	Not Supported
H5: Satisfaction → Continuance Intention	0,669	0,672	0,107	6,258	0	Supported

Source: Data Processing Using SmartPLS 4 (2026)

Overall, the empirical results of this study are statistically acceptable, though a deeper interpretation is necessary to understand the underlying mechanisms behind the observed relationships among variables. This section reviews each hypothesis, combining the statistical findings with the Unified Theory of Acceptance and Use of Technology (UTAUT).

The results for Hypothesis 1 indicate that performance expectancy does not have a significant effect on satisfaction: $p = 0.096 (> 0.05)$ and $t = 1.307$, which is below the critical value for significance. The results of this study are contradictory to the research conducted by (Marinković et al., 2020), which states that

performance expectancy has a significant effect on satisfaction. According to (Amsal et al., 2021), this may be because users' perceptions of the system's benefits and performance improvements have not directly increased their satisfaction. In this case, one reason could be that among IUP students, especially foreign students, very high baseline expectations for digital ecosystems mean that features such as downloading materials, submitting assignments, or viewing grades are perceived as standard utilities rather than value-adding advantages that would elevate satisfaction. Framed through Expectancy-Confirmation Theory, satisfaction tends to arise when performance exceeds expectations (positive disconfirmation). If the campus LMS merely matches what they consider a basic then the usefulness of LMS without innovative capabilities that surpass systems they have used elsewhere will not be translated into higher satisfaction because the experience is taken for granted (Sharon nicholas Omoregbe et al., 2017; Wandira et al., 2024). In contrast, Hypothesis 2 is supported. Effort Expectancy significantly and positively affects Satisfaction ($p = 0.009 < 0.05$; $t = 2.360$). This finding indicates that students are more likely to be satisfied when the LMS is easy to understand and use. The result is consistent with Teng et al. (2022), who found that effort expectancy positively influences satisfaction and continued usage intention in educational metaverse platforms. A possible explanation is that students value systems that require minimal effort to navigate, allowing them to focus on learning activities rather than dealing with technical difficulties. Therefore, a clear interface, simple instructions, and user-friendly features can enhance students' overall satisfaction with the LMS.

Hypothesis 3 is supported. Social Influence positively and significantly affects Satisfaction ($p = 0.036 < 0.05$; $t = 1.800$). This finding suggests that students' satisfaction with the LMS is influenced by the opinions and recommendations of people around them, such as lecturers, classmates, and academic institutions. The result is consistent with Teng et al. (2022), who found that social influence positively affects satisfaction and continued usage intention. In the context of IUP students, support and encouragement from lecturers and peers may increase confidence in using the LMS and contribute to a more positive learning experience (Alzahrani & Seth, 2021). Therefore, universities should encourage active promotion and consistent use of the LMS among instructors and students to strengthen its acceptance and satisfaction.

However, the results for Hypothesis 4 show that Facilitating Conditions do not significantly affect Satisfaction ($p = 0.188 > 0.05$; $t = 0.884$). The results of this study are consistent with the research conducted by Aldiabat et al. (2024), which found that having good internet, adequate devices, or technical support does not necessarily make students satisfied. A plausible explanation is that users already have sufficient access to the necessary devices and technology, so these supporting conditions are treated as baseline requirements rather than value-adding features that boost satisfaction. As digital infrastructure becomes ubiquitous, especially in post-pandemic educational environments, facilitating conditions frequently demonstrate a non-significant direct effect on student satisfaction and behavioral intention (Al Mulhem, 2025; Alzahrani & Seth, 2021). Consequently, supporting facilities are regarded as basic necessities rather than elements that influence satisfaction. Furthermore, the results confirm Hypothesis 5. Satisfaction positively and significantly affects continuance intention ($p = 0.000 < 0.05$; $t = 6.258$; path coefficient = 0.669). These outcomes highlight satisfaction as a crucial factor motivating users to persist with the system. This finding aligns with the Expectation-Confirmation Model (ECM; Bhattacharjee, 2001), rooted in Expectation Confirmation Theory (Oliver, 1980), which posits that satisfied users are more likely to continue using a technology. When user experience meets or exceeds expectations, users develop a stronger commitment to ongoing use.

Overall, continuance intention is primarily driven by users' satisfaction. Among the antecedents of satisfaction, effort expectancy and social influence are significant, whereas performance expectancy and facilitating conditions are not. This pattern motivates the mediation analysis to examine how improvements in ease of use and social support translate, via satisfaction, into sustained system use.

3.5. Mediation Effects Test (Specific Indirect Effects)

Table 11. Effects of the Direct Hypothesis

Hypothesis	Original Sample	Sample Mean	Standard Deviation	T Statistics	P Value	Kesimpulan
H6: Performance Expectancy → Satisfaction → Continuance Intention	0,151	0,146	0,125	1,202	0,115	Not Supported
H7: Effort Expectancy → Satisfaction → Continuance Intention	0,224	0,217	0,092	2,446	0,007	Supported
H8: Social Influence → Satisfaction → Continuance Intention	0,221	0,2	0,134	1,645	0,05	Not Supported
H9: Facilitating Conditions → Satisfaction → Continuance Intention	0,098	0,128	0,11	0,89	0,187	Not Supported

Source: Data Processing Using SmartPLS 4 (2026)

The results for Hypothesis 6 indicate that satisfaction does not significantly mediate the relationship between performance expectancy and continuance intention. The indirect effect shows an original sample of 0.151, $t = 1.202$, and $p = 0.115$, which does not meet the significance threshold ($p < 0.05$). Therefore, H6 is not supported. This finding is consistent with the study conducted by Masrani et al. (2023) and Rawashdeh & Rawashdeh (2021) which found that learners' satisfaction did not mediate the relationship between performance expectancy and continuance intention. This suggests that perceptions of usefulness and performance benefits are not sufficient to increase continuance intention via the satisfaction pathway. Although users may recognize the benefits the system provides, such perceptions do not necessarily translate into satisfaction levels that encourage continuance use. In contrast, Hypothesis 7 is supported, indicating that satisfaction significantly mediates the relationship between effort expectancy and continuance intention. The indirect effect yields an original sample of 0.224, $t = 2.446$, and $p = 0.007$ ($p < 0.05$). This finding is consistent with the study by (Rawashdeh & Rawashdeh, 2021). which highlighted the importance of satisfaction in encouraging continued system usage. For IUP students, who frequently interact with digital platforms in their academic activities, an LMS that is easy to learn and navigate can create a more satisfying learning experience. When students can access materials, submit assignments, and participate in course activities with minimal effort, they are more likely to feel satisfied with the system. This positive experience subsequently strengthens their intention to continue using the LMS in the future. which highlighted the importance of satisfaction in encouraging continued system usage. For IUP students, who frequently interact with digital platforms in their academic activities, an LMS that is easy to learn and navigate can create a more satisfying learning experience. When students can access materials, submit assignments, and participate in course activities with minimal effort, they are more likely to feel satisfied with the system. This positive experience subsequently strengthens their intention to continue using the LMS in the future. The results for Hypothesis 8 show that satisfaction does not significantly mediate the relationship between social influence and continuance intention. The indirect effect yields an original sample of 0.221, $t = 1.645$, and $p = 0.050$. Therefore, H8 is not supported under a $p < 0.05$ criterion. This finding is consistent with (Song et al., 2023), who found that subjective norms did not significantly influence satisfaction, although they positively affected perceived usefulness and continuance intention. Although social influence shapes users' perceptions and experiences, the indirect pathway through satisfaction is not strong enough to reach statistical significance. This suggests that, when deciding whether to continue using a system, users rely more on their own experiences and evaluations than on social pressure. Similarly, Hypothesis 9 is not supported, indicating that satisfaction does not significantly mediate the relationship between facilitating conditions and continuance intention. The indirect effect yields an original sample of 0.098, $t = 0.890$, and $p = 0.187$ ($p > 0.05$). This finding contradicts the study of Vasuthevan et al. (2024), which identified sequential mediating relationships linking facilitating conditions and continuance intention. A possible explanation is that IUP students generally have adequate access to digital devices, stable internet connections, and technical support. As a result, facilitating conditions may be perceived as standard requirements rather than factors that enhance satisfaction. While the availability of technological resources enables students to use the LMS effectively, it does not necessarily create a level of satisfaction that influences their intention to continue using the system (Ashrafi et al., 2022). These facilitating conditions are often perceived as standard utilities rather than value-adding features, meaning their presence is insufficient to directly drive long-term continuance intention (Hien & Nhung, 2026). Therefore, continuance intention may depend more on students' actual learning experiences and perceived value of the LMS than on the supporting infrastructure itself.

Overall, the mandatory nature of LMS use radically shifts student motivation from voluntary engagement to mere academic compliance. In this mandatory ecosystem, students will continue to access the system to meet course requirements regardless of their level of satisfaction. Consequently, most cognitive and environmental determinants lose their primary impact. Factors such as facilitating conditions and performance expectancy are merely viewed as the minimum service standards that should already be in place (taken for granted). On the other hand, social influence also becomes insignificant because institutional obligations have replaced the role of peer and faculty pressure or support. Ultimately, international students' satisfaction is purely determined by factors that minimize daily technical barriers (effort expectancy). Eliminating user frustration through an intuitive and easy-to-learn system is the only successful path to building affective satisfaction; thus, satisfaction is shown to mediate the influence of effort expectancy on the intention to continue using the LMS (continuance intention).

4. CONCLUSION

This study was motivated by the accelerating transition toward online learning and the persistent institutional challenge of sustaining Learning Management System (LMS) use beyond initial adoption, particularly within mandatory academic ecosystems. Focusing on international undergraduate students this research integrated the Unified Theory of Acceptance and Use of Technology (UTAUT) with the Expectation-Confirmation Model (ECM) to examine the mediating role of user satisfaction in the relationship between the four UTAUT

determinants performance expectancy, effort expectancy, social influence, and facilitating conditions and continuance intention.

The findings demonstrate that, among the four determinants, only effort expectancy and social influence exert a significant effect on satisfaction, whereas performance expectancy and facilitating conditions do not. This pattern indicates that for a digitally literate, international student segment, perceived usefulness and supporting infrastructure are regarded as standard, taken-for-granted service features rather than value-adding qualities that elevate satisfaction. Satisfaction, in turn, is confirmed as a strong and significant predictor of continuance intention. The mediation analysis further reveals that satisfaction operates as a selective mediator: it exclusively transmits the effect of effort expectancy on continuance intention, while the indirect pathways originating from performance expectancy, social influence, and facilitating conditions fail to reach significance.

From a theoretical perspective, this study contributes to the technology adoption and post-adoption literature by clarifying that the mediating role of satisfaction is contingent upon a determinant's capacity to reduce daily technical friction rather than its symbolic or functional value. The mandatory nature of LMS use radically reorients user motivation from voluntary engagement toward academic compliance, thereby neutralizing most cognitive and environmental determinants and leaving ease of use as the principal affective bridge to satisfaction. Practically, the findings suggest that higher education institutions seeking genuine rather than merely compliant, LMS engagement should prioritize intuitive, low-effort interface design and the elimination of everyday technical barriers, instead of investing primarily in performance features or infrastructure that students already treat as baseline requirements.

Despite its contributions, this study has several limitations. First, the sample size is relatively modest (71 respondents) and confined to international undergraduate students at a single institution, which may restrict the generalizability of the findings to other programs, institutions, or cultural contexts. Second, the reliance on purposive sampling and online questionnaires may introduce response bias and limit population representation. Future research is suggested to expand the sample size and employ probability sampling, larger and more diverse cross-institutional samples, and longitudinal or comparative designs to further validate and extend these findings. It is also encouraged to incorporate other variables that may influence satisfaction and continuance intention of LMS, such as cultural factors or prior user experiences. Overall, this study underscores that in institutionally mandated environments, the reduction of effort-related barriers and the cultivation of user satisfaction are decisive in shaping sustained technology use, offering both theoretical insight and practical guidance for institutions navigating the evolving digital education landscape.

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