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Attitude as a mediator between UTAUT2 factors and ESL undergraduates' behavioural intention towards blended learning

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Abstract

Blended learning is widely implemented in English language education, but factors affecting ESL learners' attitude and behavioural intention towards blended learning remain insufficiently examined. Most studies focus on effectiveness rather than learner acceptance. This study integrates attitude from the Technology Acceptance Model (TAM) into the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) to examine the direct effects of seven factors on attitude and the mediating role of attitude between these factors and behavioural intention. A cross-sectional survey was administered to undergraduate ESL learners enrolled in English proficiency courses at Malaysian public universities across all regions, using stratified random sampling to ensure national representativeness. Overall, 524 valid responses were analysed using confirmatory factor analysis (CFA) and structural equation modelling (SEM). Effort expectancy, hedonic motivation, price value, and habit significantly affected attitude. However, performance expectancy, social influence, and facilitating conditions had no significant effect on attitude. Moreover, attitude significantly affected behavioural intention. Lastly, attitude fully mediated the effects of effort expectancy, hedonic motivation, and price value on behavioural intention, and partially mediated the effect of habit on behavioural intention. The UTAUT2 for Blended English Language Learning (UTAUT2-BLE) model was proposed to help ESL educators design blended English language courses that effectively address learners' needs.

Keywords: Attitude, Behavioural intention, Blended learning, ESL learners, Higher education, UTAUT2.

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Contribution of this paper to the literature
This study integrates attitude from TAM into UTAUT2 as a mediator, testing all seven UTAUT2 factors' effects on ESL learners' attitude and behavioural intention towards blended learning. The resulting UTAUT2-BLE model, validated on a national Malaysian sample, achieves stronger model fit than prior models and guides blended English course design.

1. Introduction

Blended learning, defined as an instructional method that combines face-to-face instruction with online learning (Cheung & Wang, 2019; Garrison & Kanuka, 2004; Graham, 2006), has attracted growing interest, with scientific output growing by 8.3% yearly from 2000 to 2023 (Amarathunga, 2025). This approach draws on the strengths of both modes to support educational outcomes (Graham, 2006; Mustapha, Hilmi, Mansor, & Saad, 2022; Singh, Steele, & Singh, 2021). In English language education specifically, blended learning has shown steady publication growth from 2005 to 2025 and has become an established approach (Ng, Sulaiman, & Yunus, 2026). It has been implemented in tertiary institutions across various countries for over a decade (Hamzah, Phong, Sharifudin, Zain, & Rahim, 2020; Pinto-Llorente, Sánchez-Gómez, García-Peñalvo, & Casillas-Martín, 2017; Shih, 2011). It extends language learning beyond limited classroom contact hours, maximising English language learning opportunities and increasing overall learning time.

In Malaysia, the government has actively promoted blended learning in higher education through national policies. The Malaysia Education Blueprint 2015 – 2025 (Higher Education), under the 9th Shift on Globalised Online Learning, requires all higher education institutions to employ blended learning as the predominant instructional approach (Ministry of Education Malaysia, 2015). Ministry of Higher Education Malaysia (2024) announced the development of a new blueprint for 2026 – 2035. This blueprint lists blended learning as one of three forms of formal learning, alongside conventional learning and open and distance learning, and plans to upgrade infrastructure, infostructure, and digital access, including integrated learning platforms that combine face-to-face and online education. The Thirteenth Malaysia Plan 2026 – 2030 also aims to increase investment in education (Ministry of Economy Malaysia, 2025). By 2016, all twenty Malaysian public universities had commenced blended learning implementation (Department of Higher Education Ministry of Education Malaysia, 2020), and English proficiency courses are among those delivered through this approach. Blended learning has been reported to improve specific English language skills under well-designed instructional conditions among Malaysian tertiary ESL learners (Abdul Rahman, Azmi, & Hassan, 2020; Buragohain, Punpeng, Jaratjarungkiat, & Chaudhary, 2023; Hassan, Abdul Rahman, & Azmi, 2021; Johari, Ab Rahman, & Nawi, 2026; Zamri & Narasuman, 2023).

However, despite this evidence of effectiveness, existing research on blended learning in Malaysian tertiary ESL contexts has given limited attention to learner acceptance. While a few Malaysian ESL studies have examined acceptance factors for related technologies such as mobile learning (Hashim, 2016) and flipped learning (Abd Rahman, 2020), these studies targeted different technologies and populations. Only Ong, Kayad, and Misieng (2019) directly examined factors affecting Malaysian tertiary ESL learners' attitude and behavioural intention towards blended learning. Nevertheless, their proposed model achieved only a moderate fit, the findings have limited generalisability, and the study used data collected before the COVID-19 pandemic, which has since transformed blended learning practices (Tan, Zakuan, & Abd Aziz, 2022). Understanding these acceptance factors is essential because learners must first accept a technology before it can be successfully implemented (Venkatesh, Morris, Davis, & Davis, 2003; Venkatesh, Thong, & Xu, 2012). Without identifying the factors that influence learners' attitude and intention, educators and policymakers cannot design blended learning courses that meet learners' needs effectively.

Beyond this knowledge gap, a theoretical gap also exists. Not only in Malaysia but across ESL/EFL contexts globally, studies that examined acceptance factors mainly employed Technology Acceptance Model (TAM), Unified Theory of Acceptance and Use of Technology (UTAUT), or models derived from them (Abd Rahman, 2020; Hashim, 2016; Li, 2025; Lu, Lin, & Fan, 2013; Ong et al., 2019; Pan, Latada, Mohamad, & Shao, 2025; Pham, Abdullah, & Poon, 2025). The Extended Unified Theory of Acceptance and Use of Technology (UTAUT2) is more comprehensive than UTAUT, as it includes additional constructs such as hedonic motivation, price value, and habit (Venkatesh et al., 2012), but no ESL or EFL blended learning study has examined all seven UTAUT2 factors together. A global bibliometric analysis on blended English language learning confirmed this gap, finding that acceptance research in this field has focused narrowly on basic TAM constructs and recommending the application of extended frameworks such as UTAUT2 (Ng et al., 2026). Furthermore, UTAUT2 does not include attitude, even though TAM posits attitude as a mediator between acceptance factors and behavioural intention (Davis, Bagozzi, & Warshaw, 1989). This mediating role, however, has not been examined in the context of blended learning using UTAUT2.

To address these gaps, this study integrates the attitude construct from TAM (Davis et al., 1989) into UTAUT2 (Venkatesh et al., 2012) to examine (1) the effects of seven UTAUT2 factors on ESL learners' attitude towards blended learning, (2) the effect of attitude on behavioural intention, and (3) the mediating role of attitude between the seven factors and behavioural intention, among undergraduate ESL learners in English proficiency courses at Malaysian public universities. Specifically, this study addresses the following research questions:

RQ1: Do performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, and habit significantly affect ESL learners' attitude towards blended learning?

RQ2: Does ESL learners' attitude towards blended learning significantly affect their behavioural intention to use blended learning?

RQ3: Does attitude significantly mediate the relationship between any of the seven UTAUT2 factors (performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, and habit) and behavioural intention?

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2. Literature Review

2.1. Blended Learning in English Language Education

In English language education, a recent systematic review reveals that blended learning improves English language proficiency across writing, reading, speaking, and listening skills (Yang & Chano, 2025). Evidence of effectiveness alone, however, does not guarantee sustained adoption because technology adoption ultimately depends on user acceptance (Viswanath Venkatesh et al., 2003; Venkatesh et al., 2012). Thus, the long-term success of blended English language learning likewise depends on whether learners genuinely accept and intend to use it. Nonetheless, research on learner acceptance remains comparatively underdeveloped. A global bibliometric analysis of the field found that most publications concentrate on pedagogical approaches, effectiveness evaluation, and implementation barriers, leaving technology acceptance research to form a smaller and less developed cluster (Ng et al., 2026). Without identifying the determinants of ESL/EFL learners' attitude and behavioural intention, educators cannot design blended courses that meet learners' needs, and policymakers cannot formulate effective implementation guidelines that support learner acceptance. Table 1 presents the limited studies that have directly examined acceptance factors in blended English language learning contexts.

Table 1. Empirical studies examining acceptance factors in blended English language learning contexts.

Study	Country and Context	Framework	Key gap relevant to this study
Lu et al. (2013)	• Taiwan • EFL blended learning	• UTAUT	• Attitude not examined
Ong et al. (2019)	• Malaysia • ESL blended learning	• Extended Self-Directed Learning Technology Acceptance Model (SDLTAM)	• Moderate model fit • Limited generalisability: regions of the universities surveyed not reported • Pre-COVID
Chu, Chowdhury, and Thu (2025a) and Chu, Chowdhury, and Thu (2025b)	• Vietnam • EFL blended writing	• UTAUT2 (but UTAUT constructs only)	• UTAUT2-specific factors not examined • Attitude not examined as a mediator
Li (2025)	• China • EFL blended learning	• TAM	• Attitude not examined as a mediator between UTAUT2 factors and behavioural intention
Li, Sulaiman, and Aziz (2025)	• China • EFL blended learning	• Custom model	• Attitude not examined as a mediator • Behavioural intention not examined
Li and Yu (2025)	• China • EFL blended learning	• Custom model	• Attitude not examined as a mediator between UTAUT2 factors and behavioural intention
Pan et al. (2025)	• China • EFL blended learning	• TAM and Expectation Confirmation Model of Information System Continuance (ECM-ISC)	• Attitude not examined
Pham et al. (2025)	• Vietnam • EFL blended learning	• UTAUT	• Causal relationships not examined

As shown in Table 1, the existing studies on acceptance factors in blended English language learning contexts are limited and fragmented. These studies draw on frameworks ranging from TAM and UTAUT/UTAUT2 to other TAM-derived and custom models. Furthermore, they vary in population and geographical context. Most importantly, no ESL/EFL blended learning study has examined all seven UTAUT2 factors, and none has investigated the mediating role of attitude between UTAUT2 factors and behavioural intention. This gap is significant in Malaysian tertiary ESL contexts, where blended learning has been widely implemented across all public universities (Department of Higher Education Ministry of Education Malaysia, 2020; Ministry of Education Malaysia, 2015), but factors affecting ESL learners' acceptance remain insufficiently researched (Ng et al., 2026). To address this gap, a more comprehensive theoretical framework is needed, as discussed in the following section.

2.2. UTAUT2 and the Role of Attitude

UTAUT2, which Venkatesh et al. (2012) developed by extending UTAUT with three additional constructs, namely hedonic motivation, price value, and habit, explains significantly higher variance in behavioural intention (74%) compared to UTAUT (56%). This enhanced explanatory power makes UTAUT2 well suited for examining technology acceptance in consumer contexts, including educational settings, where learners function as end users of blended learning systems. Researchers have adopted UTAUT2 in blended learning studies in higher education, including medical education (Azizi, Roozbahani, & Khatony, 2020) and general higher education (Ghai et al., 2025), but as established in Table 1, no study has examined all seven UTAUT2 factors in an ESL or EFL blended learning context. UTAUT2 therefore represents the most comprehensive framework available for examining factors affecting ESL learners' technology acceptance in blended learning contexts.

However, UTAUT2 does not include attitude as a construct even though TAM (Davis et al., 1989) originally positioned attitude as a key mediator between acceptance factors and behavioural intention. A meta-analysis re-examining UTAUT found that attitude partially mediates the relationships between acceptance factors and behavioural intention (Dwivedi, Rana, Jeyaraj, Clement, & Williams, 2019). Since UTAUT2 is derived from UTAUT,

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this finding suggests that excluding attitude from UTAUT2 weakens the model's explanatory power. A meta-analytic study of 21 empirical UTAUT studies further confirms that attitude significantly predicts behavioural intention in a range of technology adoption settings (Or, 2023). In ESL contexts specifically, attitude has been found to mediate the relationships between acceptance factors and behavioural intention in Malaysian ESL mobile learning (Hashim, 2016) and flipped learning (Abd Rahman, 2020). Nonetheless, no ESL/EFL blended learning study has examined attitude as a mediator between all UTAUT2 factors and behavioural intention.

This gap positions the present study as the first to examine all seven UTAUT2 factors with attitude as a mediator in an ESL blended learning context. The conceptual framework, construct definitions, and hypotheses are presented in the following section.

2.3. Conceptual Framework and Hypotheses

Figure 1 presents this study's conceptual framework, constructed by integrating the attitude construct from TAM Davis et al. (1989) into Venkatesh et al. (2012) UTAUT2. The constructs and hypotheses derived from this framework are presented in the following paragraphs.

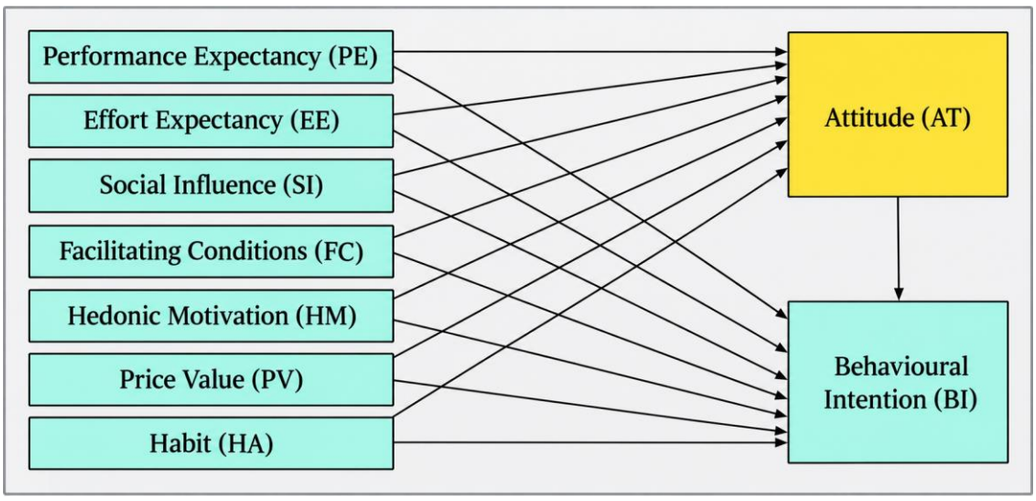


Figure 1. Conceptual framework of the study.

Table 2 presents the definitions of all nine constructs in the conceptual framework, contextualised to the ESL blended learning context of the study.

Table 2. Definitions of constructs.

Construct	Definition	Derived from
Performance Expectancy (PE)	The degree to which using blended learning helps ESL learners to learn English language.	Venkatesh et al. (2003) and Venkatesh et al. (2012)
Effort Expectancy (EE)	The degree of ease associated with ESL learners' use of blended learning to learn English language.	Venkatesh et al. (2003) and Venkatesh et al. (2012)
Social Influence (SI)	The degree to which ESL learners perceive that important others, including their English language lecturers and classmates, believe they should use blended learning to learn English.	Venkatesh et al. (2003) and Venkatesh et al. (2012)
Facilitating Conditions (FC)	The degree to which ESL learners believe that their universities/ faculties/departments/ English language lecturers provide sufficient resources and support for them to use blended learning to learn English language.	Venkatesh et al. (2003) and Venkatesh et al. (2012)
Hedonic Motivation (HM)	The degree of fun or pleasure ESL learners perceive to be derived from using blended learning to learn English language.	Venkatesh et al. (2012)
Price Value (PV)	ESL learners' cognitive trade-off between the perceived benefits of using blended learning to learn English language and the monetary cost of using it.	Dodds, Monroe, and Grewal (1991) and Venkatesh et al. (2012)
Habit (HA)	The degree to which ESL learners tend to use blended learning to learn English automatically because of their prior experience of using blended learning.	Limayem, Hirt, and Cheung (2007) and Venkatesh et al. (2012)
Attitude (AT)	ESL learners' positive or negative feelings towards using blended learning to learn English language.	Davis et al. (1989) and Fishbein and Ajzen (1975)
Behavioural Intention (BI)	The degree to which ESL learners intend to use blended learning to learn English language.	Venkatesh et al. (2003) and Venkatesh et al. (2012)

Based on the conceptual framework and theoretical justifications presented above, 15 hypotheses were formulated for this study, organised into three groups.

The first group concerns the direct effects of the seven UTAUT2 factors on attitude. UTAUT2 was originally developed to predict behavioural intention (Venkatesh et al., 2012) but following Dwivedi et al. (2019) meta-analytic findings that attitude mediates the relationships between acceptance factors and behavioural intention, the seven factors are hypothesised to affect attitude before influencing behavioural intention. In Malaysian ESL contexts, some

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of the UTAUT factors were found to significantly affect attitude among polytechnic ESL learners in mobile learning (Hashim, 2016) and among ESL lecturers in flipped learning (Abd Rahman, 2020), but not among undergraduate ESL learners in public universities. For the UTAUT2-specific factors (hedonic motivation, price value, and habit), direct evidence of effects on attitude in ESL contexts is limited. However, since attitude precedes behavioural intention in TAM (Davis et al., 1989), these factors' demonstrated effects on behavioural intention in higher education blended learning (Azizi et al., 2020; Ghai et al., 2025) suggest they may influence attitude before behavioural intention.

H_1: Performance expectancy has a significant effect on ESL learners' attitude towards blended learning.
H_2: Effort expectancy has a significant effect on ESL learners' attitude towards blended learning.
H_3: Social influence has a significant effect on ESL learners' attitude towards blended learning.
H_4: Facilitating conditions have a significant effect on ESL learners' attitude towards blended learning.
H_5: Hedonic motivation has a significant effect on ESL learners' attitude towards blended learning.
H_6: Price value has a significant effect on ESL learners' attitude towards blended learning.
H_7: Habit has a significant effect on ESL learners' attitude towards blended learning.

The second group concerns attitude's direct effect on behavioural intention. TAM posits attitude as a direct determinant of behavioural intention (Davis et al., 1989), and this relationship has been consistently supported in ESL technology acceptance studies, including Malaysian ESL mobile learning (Hashim, 2016), Malaysian ESL flipped learning (Abd Rahman, 2020), and Vietnamese EFL blended learning (Chu et al., 2025a).

H_8: ESL learners' attitude has a significant effect on their behavioural intention to use blended learning.

The third group concerns attitude's mediating role between the seven factors and behavioural intention. As established in Section 2.2 above, attitude mediated some of these relationships in prior UTAUT-based studies (Abd Rahman, 2020; Dwivedi et al., 2019; Hashim, 2016). Nevertheless, attitude's mediating role between the UTAUT2-specific factors (hedonic motivation, price value, and habit) and behavioural intention has not been examined in any ESL or EFL context.

H_9: Attitude mediates the relationship between performance expectancy and behavioural intention.
H_{10}: Attitude mediates the relationship between effort expectancy and behavioural intention.
H_{11}: Attitude mediates the relationship between social influence and behavioural intention.
H_{12}: Attitude mediates the relationship between facilitating conditions and behavioural intention.
H_{13}: Attitude mediates the relationship between hedonic motivation and behavioural intention.
H_{14}: Attitude mediates the relationship between price value and behavioural intention.
H_{15}: Attitude mediates the relationship between habit and behavioural intention.

3. Methodology

3.1. Research Design

This study used a quantitative approach and a cross-sectional survey design. It examined the relationships between seven UTAUT2 factors, attitude, and behavioural intention among undergraduate ESL learners enrolled in English proficiency courses at Malaysian public universities. A cross-sectional design is suitable for measuring current attitudes, beliefs, opinions, and practices (Creswell, 2015). Thus, it aligns with the objectives of this study. This study also employed Structural Equation Modelling (SEM) as the primary analytical technique because it tests multiple hypothesised direct and indirect relationships simultaneously.

3.2. Participants

The target population was undergraduate ESL learners enrolled in English proficiency courses at Malaysian public universities (N = 375,904). Using stratified random sampling, this study divided this population into five strata based on Malaysia's geographical regions because the 20 public universities operate campuses across multiple states. The questionnaire was distributed to all 20 Malaysian public universities, as listed in the Ministry of Higher Education Malaysia (2025). As several universities operate campuses in more than one region, sample size and response distribution are reported by region rather than by institution, consistent with the region-based stratification design. Based on Hair, Black, Babin, and Anderson (2019) recommendation for complex SEM models with multiple constructs and indicators, a minimum of 500 responses was required. The minimum sample size for each stratum was then calculated proportionally using the formula: (minimum total sample size × total students in that stratum) / total population. Table 3 presents the regional breakdown, minimum sample sizes, and valid responses.

Table 3. Stratified sampling and response distribution.

Region	Total undergraduate students	Minimum sample size	Valid responses
Northern	83,626	111	116
Central	145,804	194	197
Southern	55,558	74	76
East Coast	56,628	75	81
East Malaysia	34,288	46	54
Total	375,904	500	524

A total of 663 responses were collected. After removing 47 blank responses and 92 straight-lining cases, 524 valid responses were retained for analysis. All five strata met their respective minimum sample size requirements. This confirmed national representation.

3.3. Instrument

The research instrument was a self-administered online questionnaire. After the Participant Information Sheet and Informed Consent Form (see Section 3.4), the questionnaire was made up of two sections. Section A contained demographic questions, while Section B contained items measuring the nine constructs in this study. A 10-point Likert scale (1 = strongly disagree; 10 = strongly agree) was used because this scale meets the requirements of

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parametric statistical analysis and enables respondents to express their feelings more precisely than shorter scales (Awang, Wan Afthanorhan, Lim, & Zainudin, 2023; Chyung, Roberts, Swanson, & Hankinson, 2017; Preston & Colman, 2000). Items for performance expectancy, effort expectancy, social influence, facilitating conditions, and behavioural intention were adapted from Venkatesh et al. (2003) and Venkatesh et al. (2012). Items for hedonic motivation, price value, and habit were adapted from Venkatesh et al. (2012). Items for attitude were adapted from Davis et al. (1989) and Fishbein and Ajzen (1975).

Adapted from the established scales described above, the instrument contained 41 items measuring nine constructs. Before collecting field data, the instrument underwent a series of validation procedures. Six experts in technology-enhanced language learning (TELL), blended learning, and ESL assessed the face and content validity of the items. The instrument was then translated from English into Malay and back by two independent translators, and the translations were verified by a Malay language expert. The study subsequently obtained ethical approval from a university research ethics committee, followed by official permission from the Malaysian Ministry of Higher Education (MOHE). A pre-test was then conducted with ESL undergraduates, confirming that the questionnaire was clear and did not cause confusion in either language. After that, a pilot test (n = 222) was conducted to confirm the validity and reliability of the instrument before field data collection began.

3.4. Data Collection

The validated questionnaire was hosted on Google Forms and distributed online. It began with a Participant Information Sheet, followed by an Informed Consent Form provided in both English and Malay. Respondents provided electronic informed consent by clicking the "I agree" button, which served as their digital signature. Those who clicked "I disagree" were directed to exit the questionnaire. The researcher contacted English language lecturers at Malaysian public universities via email across all five geographical regions, requesting their assistance in distributing the questionnaire to undergraduate ESL students enrolled in English proficiency courses. Participants were informed of the research purpose, their right to withdraw at any time, and how their data would be kept confidential.

3.5. Data Analysis

IBM SPSS version 25.0 was used for descriptive statistics to analyse the demographic characteristics of the respondents. IBM SPSS AMOS version 24.0 was then used for inferential statistics via Covariance-Based Structural Equation Modelling (CB-SEM). Following a two-stage approach, the measurement model was first validated via Pooled Confirmatory Factor Analysis (Pooled-CFA) before the structural model was evaluated. The model fit was assessed using three categories of indices: absolute fit (RMSEA < 0.08), incremental fit (CFI > 0.90), and parsimonious fit ($\chi^2/df < 3.0$). Reliability was confirmed by composite reliability (CR) values exceeding 0.60 (Awang et al., 2023), and convergent validity was confirmed by average variance extracted (AVE) values exceeding 0.50 (Hair et al., 2019). This study assessed discriminant validity using the Fornell-Larcker criterion (Fornell & Larcker, 1981), which requires the square root of each construct's AVE to exceed its correlations with all other constructs, and all inter-construct correlations to remain below 0.85.

A 10,000-sample bootstrapping procedure with bias-corrected 95% confidence intervals was applied to estimate path coefficients and test the significance of both direct and indirect effects, as recommended by Awang et al. (2023) and Hair et al. (2019). This approach is more robust than traditional methods such as the Sobel test, as it addresses potential multivariate non-normality and provides more accurate confidence limits (MacKinnon, Lockwood, & Williams, 2004; Preacher & Hayes, 2008). If the p-value was less than 0.05, an effect was considered statistically significant. Mediation was interpreted as follows: full mediation if only the indirect effect was significant, partial mediation if both the indirect and direct effects were significant, and no mediation if neither effect was significant (Awang et al., 2023).

4. Results

Before analysing the data, common method variance (CMV) was assessed by conducting Harman's single-factor test. The first factor accounted for 48.66% of the total variance, which is below the 50% threshold (Awang et al., 2023; Hair et al., 2019), indicating that CMV is not a substantial concern in this study. Furthermore, since CB-SEM with the Maximum Likelihood Estimator is robust to violations of normality assumptions, this study assessed normality of data through skewness and kurtosis values (Awang et al., 2023; Hair et al., 2019). These values are within the acceptable range of ±1.96 (Hair et al., 2019), with skewness values ranging from -1.073 to -0.418 and kurtosis values ranging from -0.908 to 0.447.

4.1. Demographic Profile of Respondents

Table 4 shows the demographic profile of the 524 respondents, presenting their regional distribution, blended learning activities, devices used, and internet access methods. For blended learning activities, devices used, and internet access methods, respondents could select all the answers that apply to them within each question, so the percentages for these three categories do not sum to 100%.

As shown in Table 4, respondents came from all five geographical regions of Malaysia, proportionally reflecting each region's undergraduate population size. Thus, the national representativeness of this dataset was confirmed. In terms of blended learning activities, downloading materials (84.0%), uploading and submitting assignments (80.3%), and attending synchronous online classes (72.5%) were the three most commonly reported. In terms of devices, smartphones (86.5%) and laptops (84.4%) were the most commonly used, while mobile internet (88.2%) and university internet (86.5%) were the primary internet access methods.

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Table 4. Demographic profile of respondents (N = 524).

Category	Group	Frequency (n)	Percentage (%)
Regions	Northern	116	22.1
	Central	197	37.6
	Southern	76	14.5
	East Coast	81	15.5
	East Malaysia	54	10.3
Top Blended Learning Activities	Download materials	440	84.0
	Upload and submit assignments	421	80.3
	Attend synchronous online classes	380	72.5
	Watch videos	327	62.4
	Complete online quizzes	320	61.1
	Complete group tasks	277	52.9
	Participate in online discussion boards	232	44.3
Devices Used	Smartphone	453	86.5
	Laptop	442	84.4
	Tablet	288	55.0
Internet Access	Mobile internet	462	88.2
	University internet	453	86.5
	Home internet	162	30.9

4.2. Assessment of the Measurement Model

Pooled-CFA was conducted to assess the unidimensionality, reliability, and validity of the measurement model (Awang et al., 2023; Hair et al., 2019). Figure 2 presents the Pooled-CFA diagram showing all constructs and their standardised factor loadings. Factor loadings, composite reliability (CR), and average variance extracted (AVE) of each construct are presented in Table 5.

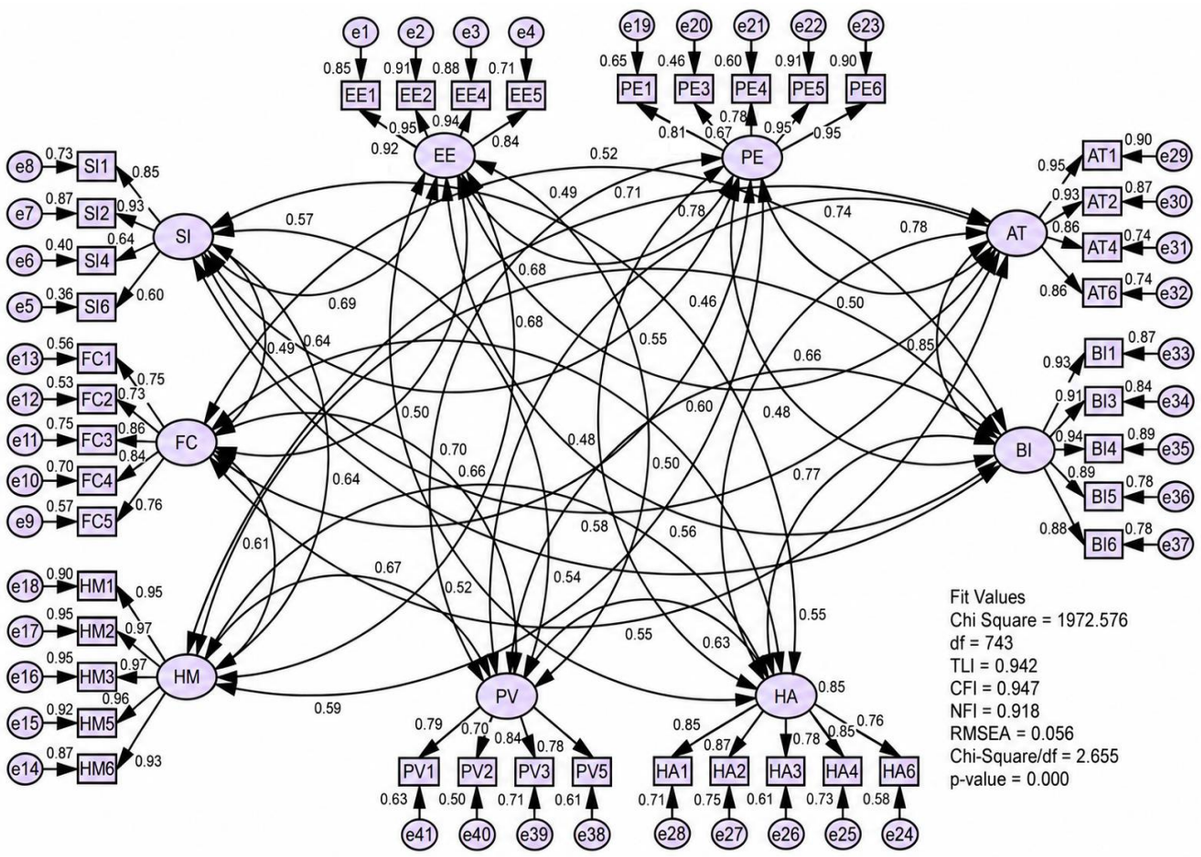


Figure 2. Pooled-CFA results of the measurement model.

As shown in Table 5, unidimensionality was achieved as the factor loadings of all 41 items exceeded the minimum threshold of 0.6, with the lowest loading being 0.600 (SI6), and no items were removed (Awang et al., 2023). Furthermore, all CR values exceeded 0.60, with the lowest being 0.848 (SI), confirming reliability (Awang et al., 2023). All AVE values exceeded 0.50, with the lowest being 0.591 (SI), confirming convergent validity (Hair et al., 2019). The measurement model also achieved satisfactory construct validity, with all three categories of fit indices meeting the recommended thresholds: RMSEA = 0.056 (<0.08), CFI = 0.947 (>0.90), and $\chi^2/df = 2.655$ (<3.0). This study assessed discriminant validity using the Fornell-Larcker criterion (Fornell & Larcker, 1981), as presented in Table 6. For each construct, the square root of AVE (diagonal values) exceeded all inter-construct correlations, and all inter-construct correlations were below 0.85 (Hair et al., 2019), confirming discriminant validity. Having confirmed that the measurement model achieved satisfactory unidimensionality, reliability, and validity, the analysis proceeded to evaluate the structural model.

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Table 5. Reliability and validity of the measurement model.

Constructs	Items	Factor Loadings	CR	AVE
Performance Expectancy	PE1	0.808	0.921	0.704
	PE3	0.675		
	PE4	0.775		
	PE5	0.952		
	PE6	0.951		
Effort Expectancy	EE1	0.920	0.953	0.835
	EE2	0.954		
	EE4	0.936		
	EE5	0.841		
Social Influence	SI1	0.853	0.848	0.591
	SI2	0.935		
	SI4	0.635		
	SI6	0.600		
Facilitating Conditions	FC1	0.751	0.891	0.622
	FC2	0.729		
	FC3	0.864		
	FC4	0.836		
	FC5	0.755		
Hedonic Motivation	HM1	0.947	0.982	0.915
	HM2	0.973		
	HM3	0.972		
	HM5	0.959		
	HM6	0.932		
Price Value	PV1	0.791	0.862	0.610
	PV2	0.705		
	PV3	0.842		
	PV5	0.781		
Habit	HA1	0.845	0.912	0.676
	HA2	0.866		
	HA3	0.779		
	HA4	0.854		
	HA6	0.761		
Attitude	AT1	0.948	0.946	0.813
	AT2	0.934		
	AT4	0.862		
	AT6	0.860		
Behavioural Intention	BI1	0.932	0.961	0.831
	BI3	0.914		
	BI4	0.943		
	BI5	0.886		
	BI6	0.882		

Table 6. Discriminant validity of the measurement model.

Constructs	PE	EE	SI	FC	HM	PV	HA	AT	BI
PE	0.839								
EE	0.783	0.914							
SI	0.637	0.695	0.769						
FC	0.459	0.499	0.492	0.789					
HM	0.595	0.684	0.637	0.612	0.957				
PV	0.487	0.548	0.565	0.699	0.671	0.781			
HA	0.476	0.517	0.548	0.504	0.663	0.630	0.822		
AT	0.500	0.599	0.578	0.547	0.708	0.739	0.781	0.902	
BI	0.480	0.559	0.540	0.521	0.675	0.659	0.767	0.846	0.912

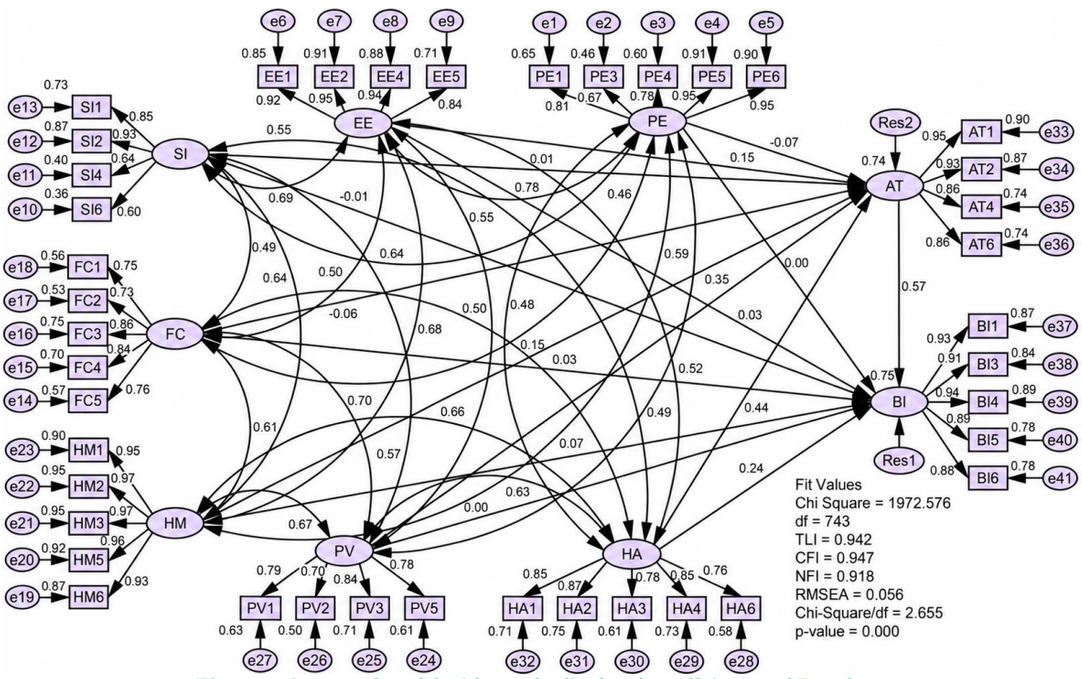


Figure 3. Structural model with standardised path coefficients and R^2 values.

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4.3. Assessment of the Structural Model

After validating the measurement model, this study used SEM to evaluate the structural model. Figure 3 and Table 7 show that all three categories of fit indices met the required thresholds: RMSEA = 0.056 (<0.08), CFI = 0.947 (>0.90), and $\chi^2/df = 2.655$ (<3.0). Thus, satisfactory model fit was confirmed. The R^2 values for attitude and behavioural intention were 0.74 and 0.75, respectively, indicating that the predictor constructs explained 74% and 75% of the variance in each construct, both reflecting moderate to substantial explanatory power (Hair et al., 2019).

Table 7. Model fit indices for the structural model.

Index Category	Index	Threshold Value	Index Value	Result
Absolute Fit	RMSEA	<0.08	0.056	Achieved
Incremental Fit	CFI	>0.90	0.947	Achieved
Parsimonious Fit	χ^2/df	<3.0	2.655	Achieved

4.3.1. Direct Effects

The structural model was then used to test H1–H8 addressing RQ1 and RQ2. As shown in Table 8, four of the seven UTAUT2 factors had significant effects on attitude, supporting H2, H5, H6, and H7. Habit had the strongest effect ($\beta = 0.442$, $p < 0.001$), followed by price value ($\beta = 0.346$, $p < 0.001$), effort expectancy ($\beta = 0.154$, $p < 0.01$), and hedonic motivation ($\beta = 0.146$, $p < 0.01$). In contrast, performance expectancy ($\beta = -0.065$, $p = 0.109$), social influence ($\beta = 0.010$, $p = 0.842$), and facilitating conditions ($\beta = -0.060$, $p = 0.161$) did not significantly affect attitude, and H1, H3, and H4 were not supported. Attitude had a significant positive effect on behavioural intention ($\beta = 0.573$, $p < 0.001$), supporting H8. Additionally, habit also showed a significant direct effect on behavioural intention ($\beta = 0.245$, $p < 0.001$; see Figure 3), which is examined further in the mediation analysis in the following section.

Table 8. Bootstrapped standardised direct effects with bias-corrected 95% confidence intervals (H1–H8).

Hypothesis	Path	Estimate (β)	Lower	Upper	p-value	Result
H1	PE → AT	-0.065	-0.16	0.015	0.109	Not supported
H2	EE → AT	0.154	0.054	0.267	0.002	Supported
H3	SI → AT	0.010	-0.079	0.098	0.842	Not supported
H4	FC → AT	-0.060	-0.147	0.022	0.161	Not supported
H5	HM → AT	0.146	0.042	0.256	0.007	Supported
H6	PV → AT	0.346	0.221	0.469	< 0.001	Supported
H7	HA → AT	0.442	0.325	0.559	< 0.001	Supported
H8	AT → BI	0.573	0.350	0.779	< 0.001	Supported

4.3.2. Mediation Analysis

Mediation effects addressing RQ3 (H9–H15) were examined using bias-corrected bootstrapping with 10,000 resamples and 95% confidence intervals, as described in the Data Analysis section. The results are presented in Table 9.

Table 9. Bootstrapped standardised indirect and direct effects with bias-corrected 95% confidence intervals for the mediating role of attitude (H9–H15).

Hypothesis	Path	Indirect				Direct				Result
		Estimate (β)	Lower	Upper	p-value	Estimate (β)	Lower	Upper	p-value	
H9	PE → AT → BI	-0.037	-0.101	0.007	0.097	0.003	-0.088	0.087	0.956	No mediation
H10	EE → AT → BI	0.088	0.034	0.167	0.001	0.027	-0.074	0.147	0.602	Full mediation
H11	SI → AT → BI	0.006	-0.044	0.063	0.836	-0.006	-0.109	0.111	0.935	No mediation
H12	FC → AT → BI	-0.034	-0.093	0.011	0.145	0.028	-0.063	0.117	0.571	No mediation
H13	HM → AT → BI	0.084	0.026	0.163	0.005	0.074	-0.025	0.196	0.155	Full mediation
H14	PV → AT → BI	0.198	0.098	0.329	< 0.001	-0.001	-0.127	0.133	0.940	Full mediation
H15	HA → AT → BI	0.254	0.150	0.372	< 0.001	0.245	0.115	0.393	< 0.001	Partial mediation

As shown in Table 9, attitude fully mediated the relationships between effort expectancy and behavioural intention (indirect $\beta = 0.088$, $p < 0.01$), hedonic motivation and behavioural intention (indirect $\beta = 0.084$, $p < 0.01$), as well as price value and behavioural intention (indirect $\beta = 0.198$, $p < 0.001$), supporting H10, H13, and H14. In all three cases, the indirect effect was significant while the direct effect was not, indicating that these factors influence behavioural intention entirely through attitude formation. Attitude partially mediated the relationship between habit and behavioural intention (H15), as both the indirect effect ($\beta = 0.254$, $p < 0.001$) and direct effect ($\beta = 0.245$, $p < 0.001$) were significant, reflecting a dual pathway through which habit shapes behavioural intention. No mediation was found for H9, H11, and H12, as performance expectancy, social influence, and facilitating conditions did not significantly affect attitude in the direct effects analysis, and therefore no indirect pathways to behavioural intention were established.

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5. Discussion

5.1. Effects of Attitude on Behavioural Intention

Attitude significantly affected behavioural intention ($\beta = 0.573$, $p < 0.001$), supporting H8. This was the strongest direct effect in the structural model. This finding aligns with Davis et al. (1989) TAM, which originally positioned attitude as a direct determinant of behavioural intention, and confirms this relationship in an ESL blended learning context. The finding is also consistent with previous ESL and EFL technology acceptance studies, where attitude significantly affected behavioural intention in Vietnamese EFL blended learning (Chu et al., 2025a), Malaysian ESL mobile learning (Hashim, 2016), and Malaysian ESL flipped learning (Abd Rahman, 2020), as well as in Malaysian blended learning across universities, colleges, and polytechnics in samples not specific to language learning (Anthony et al., 2020).

This result can be understood as follows. As posited by TAM (Davis et al., 1989), attitude functions as an evaluative gateway between technology-related perceptions and behavioural decisions, and the present study confirms this mechanism in the ESL blended learning context. The proposed model explains 75% of the variance in behavioural intention ($R^2 = 0.75$), which is comparable to the 74% explained by the original UTAUT2 (Venkatesh et al., 2012) in consumer contexts, demonstrating that the model retains strong explanatory power (Hair et al., 2019) when adapted for ESL education. Unlike Ong et al. (2019), whose model achieved only moderate fit (RMSEA = 0.077, CFI = 0.83, $\chi^2/df = 2.99$), the present model achieved good fit on all three indices (RMSEA = 0.056, CFI = 0.947, $\chi^2/df = 2.655$), providing greater confidence in the stability of attitude's effect on behavioural intention.

5.2. Direct Effects of UTAUT2 Factors on Attitude and Mediation Effects of Attitude

Four of the seven UTAUT2 factors (Venkatesh et al., 2012) significantly affected attitude, with all seven predictors together explaining 74% of the variance in attitude (R2 = 0.74), indicating moderate to substantial explanatory power (Hair et al., 2019). The same four factors' effects on behavioural intention were mediated by attitude. The following sub-sections discuss each finding in relation to prior research, with implications for ESL and EFL blended learning broadly.

5.2.1. Full Mediation

5.2.1.1. Effort Expectancy

Effort expectancy significantly affected attitude ($\beta = 0.154$, $p < 0.01$), supporting H2. This result is consistent across ESL and EFL technology-enhanced learning literature. For instance, effort expectancy significantly affected attitude towards mobile learning among Malaysian polytechnic ESL learners (Hashim, 2016), flipped learning among Malaysian university ESL lecturers (Abd Rahman, 2020), and content-based language applications among Indonesian EFL learners (Yulian, Ruhama, & Yuniarti, 2024). This consistent pattern suggests that effort expectancy is a robust determinant of attitude in ESL and EFL technology-enhanced learning contexts.

Attitude fully mediated the relationship between effort expectancy and behavioural intention, supporting H10. The indirect effect was significant ($\beta = 0.088$, $p < 0.01$), while the direct effect was not significant ($\beta = 0.027$, $p = 0.602$). The non-significant direct effect is consistent with technology-enhanced English language learning studies, where effort expectancy did not directly affect behavioural intention in Vietnamese EFL blended learning (Chu et al., 2025b) Taiwanese EFL Moodle-based blended learning (Lu et al., 2013), Malaysian ESL mobile learning (Hashim, 2016), and Malaysian ESL flipped learning (Abd Rahman, 2020). In contrast, effort expectancy directly influenced behavioural intention in non-language blended learning contexts (Khazalah, Alrababah, Mansour, & Alafif, 2025; Shokeen, Kumar, & Khanna, 2023), suggesting this direct relationship may be more characteristic of non-language than language learning contexts.

The full mediation aligns with the consistent pattern found in other ESL and EFL educational technology contexts. Attitude fully mediated this relationship in Malaysian ESL mobile learning (Hashim, 2016) and Malaysian ESL flipped learning (Abd Rahman, 2020). In the present study, the most commonly reported activities, namely downloading materials (84.0%), uploading and submitting assignments (80.3%), and attending synchronous online classes (72.5%), are simple, low-barrier tasks that generate consistent ease-of-use experiences, reducing technology-related anxiety and forming favourable attitudes, which subsequently shape behavioural intention. This mechanism is consistent with TAM (Davis et al., 1989), which positions perceived ease of use as operating through attitude rather than directly on intention.

5.2.1.2. Hedonic Motivation

Hedonic motivation also significantly affected attitude ($\beta = 0.146$, $p < 0.01$), supporting H5. This is a novel finding, as existing UTAUT2 studies examined hedonic motivation's effect on behavioural intention rather than on attitude (Azizi et al., 2020; Camilleri, Farrugia Caruana, Pulé, Efrén Mora, & Camilleri, 2025; Deng, Chen, Zeng, & Fang, 2024; Khazalah et al., 2025; Lv & Li, 2024; Rudhumbu, 2022).

Attitude also fully mediated the relationship between hedonic motivation and behavioural intention, supporting H13. The indirect effect was significant ($\beta = 0.084$, $p < 0.01$) while the direct effect was not significant ($\beta = 0.074$, $p = 0.155$). This non-significant direct effect aligns with Alotumi (2022) EFL blended learning finding but contrasts with non-language blended learning studies, where hedonic motivation consistently influenced behavioural intention (Ashraf, Shabnam, Tsegay, & Huang, 2023; Azizi et al., 2020; Camilleri et al., 2025; Dakduk, Santalla-Banderali, & van der Woude, 2018; Lv & Li, 2024; Rudhumbu, 2022), suggesting this direct relationship may be more characteristic of non-language than language learning contexts.

Demographic findings show that commonly reported activities include watching videos (62.4%) and completing online quizzes (61.1%), which generate enjoyment and positive emotions, consolidating into favourable attitudes, which subsequently shape behavioural intention. This is consistent with evidence that enjoyment positively influences EFL learners' engagement in blended learning environments (Cai, 2025).

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5.2.1.3. Price Value

Price value was the second strongest significant predictor of attitude ($\beta = 0.346$, $p < 0.001$), supporting H6. This is a novel finding, as existing UTAUT2 blended learning studies examined price value's effect on behavioural intention rather than attitude (Ashraf et al., 2023; Attuquayefio, 2022; Azizi et al., 2020; Camilleri et al., 2025; Rudhumbu, 2022).

Similarly, attitude fully mediated the relationship between price value and behavioural intention, supporting H14. The indirect effect was significant ($\beta = 0.198$, $p < 0.001$) while the direct effect was not significant ($\beta = -0.001$, $p = 0.940$). No comparable English language learning study exists for this relationship. In non-language blended learning contexts, price value's direct effect on behavioural intention was significant in some studies (Attuquayefio, 2022; Azizi et al., 2020) but not in others (Ashraf et al., 2023; Camilleri et al., 2025; Rudhumbu, 2022), reflecting an inconsistent pattern.

Demographic findings show that most respondents rely on personal smartphones (86.5%), laptops (84.4%), and self-funded mobile internet (88.2%) to participate in blended learning. This indicates a real financial burden. This finding aligns with other Malaysian ESL research findings. For instance, Malaysian ESL learners faced financial strain when university Wi-Fi is unavailable (Sharif, Noor, Omar, & Teo, 2021). Connectivity problems such as loss of connection and poor coverage during blended learning in ESL classes have also been reported (Ramalingam, Yunus, & Hashim, 2023), thus reflecting the cost learners need to bear to maintain reliable access. Despite these costs, the significant positive effect suggests that learners still perceive the educational benefits of blended learning as worth their investment. Blended learning also reduces other expenses such as travelling costs to or from campus, which further contributes to a favourable overall cost-benefit perception among learners (Amiruddin, Huzaimi, Mohamad, & Ani, 2022; Andrews, Stoneley, & Eckl, 2025). This perception, in turn, shapes positive attitudes and drives behavioural intention towards blended learning.

5.2.2. Partial Mediation: Habit

Habit was the strongest significant predictor of attitude ($\beta = 0.442$, $p < 0.001$), supporting H7. This is a novel finding, as existing blended learning studies examined habit's effect on behavioural intention rather than attitude (Alotumi, 2022; Ashraf et al., 2023; Azizi et al., 2020; Camilleri et al., 2025; Dakduk et al., 2018; Khazalah et al., 2025; Rudhumbu, 2022).

Attitude partially mediated the relationship between habit and behavioural intention, supporting H15. Both the indirect effect ($\beta = 0.254$, $p < 0.001$) and the direct effect ($\beta = 0.245$, $p < .001$) were significant. The significant direct effect is consistent with the predominant pattern in English language learning contexts, where habit significantly influenced behavioural intention in EFL blended learning via Google Classroom (Alotumi, 2022), and with non-language blended learning contexts (Ashraf et al., 2023; Azizi et al., 2020; Khazalah et al., 2025), though a minority of non-language blended learning studies reported non-significant effects (Camilleri et al., 2025; Dakduk et al., 2018; Rudhumbu, 2022). No prior study in blended learning for English language learning has examined attitude as a mediator between habit and behavioural intention, making this a novel contribution.

In the present study, the three most commonly reported blended learning activities, namely downloading materials (84.0%), uploading and submitting assignments (80.3%), and attending synchronous online classes (72.5%), are by nature repeated regularly throughout the semester. Hence, the partial mediation can be explained by two distinct processes operating simultaneously. UTAUT2 defines habit as automatic behaviour arising from prior experience (Limayem et al., 2007; Venkatesh et al., 2012). Firstly, this repeated engagement builds automatic responses that trigger future usage intention directly, without requiring conscious attitudinal evaluation. Simultaneously, these repeated satisfactory experiences generate positive evaluations that consolidate into favourable attitudes, which subsequently shape behavioural intention, consistent with TAM (Davis et al., 1989). This dual-process mechanism distinguishes habit from effort expectancy, hedonic motivation, and price value, which operate exclusively through attitude, and is likely applicable in other ESL and EFL blended learning contexts where routine repeated activities are the dominant mode.

5.2.3. No Mediation: Performance Expectancy, Social Influence, and Facilitating Conditions

Performance expectancy ($\beta = -0.065$, $p = 0.109$), social influence ($\beta = 0.010$, $p = 0.842$), and facilitating conditions ($\beta = -0.060$, $p = 0.161$) did not significantly affect attitude, and H1, H3, and H4 were not supported. Additionally, these three factors also did not significantly affect behavioural intention. Consequently, attitude did not mediate the effects of performance expectancy, social influence, and facilitating conditions on behavioural intention (H9, H11, H12), as all indirect and direct effects were non-significant. This is consistent with Shokeen et al. (2023) non-significant effect of performance expectancy on attitude in a non-language blended learning context and with Alotumi (2022) finding of non-significant effects for all three factors on behavioural intention in an EFL blended learning context.

However, the current research finding diverges from a study on EFL content-based learning applications, which found that performance expectancy and facilitating conditions significantly affected attitude (Yulian et al., 2024). Regarding mediation, no prior ESL/EFL blended learning study has examined attitude as a mediator for any of these three factors. In contrast, attitude fully mediated the effects of performance expectancy, social influence, and facilitating conditions on Malaysian ESL lecturers' behavioural intention towards flipped learning (Abd Rahman, 2020). This divergence likely stems from how blended learning is implemented in Malaysian university English proficiency courses. The most common activities, downloading materials (84.0%), uploading and submitting assignments (80.3%), and attending synchronous online classes (72.5%), are administrative tasks offering limited exposure to blended learning's performance benefits, collaborative interaction, and institutional support.

For performance expectancy, meaningful activity design may help learners to believe that blended learning improves their English, as students who used podcasts, videocasts, and online forums perceived improvements in their writing and reported more positive attitudes towards learning writing (Abdul Rahman et al., 2020). For social influence, limited learner-to-instructor interaction may make it difficult to build the social connections through which lecturers can encourage learners to use blended learning, as learners reported limited time with instructors and

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delayed replies (Ramalingam et al., 2023). For facilitating conditions, the result may reflect blended learning platforms being used mainly for file-sharing rather than integrated teaching, as similarly observed among Vietnamese EFL lecturers (Kieu, Lee, & Sivapalan, 2024), leaving institutional support as a background resource that neither shapes attitude nor directly influences behavioural intention.

6. Theoretical Implications: UTAUT2-BLE Model

Based on these findings, the Unified Theory of Acceptance and Use of Technology 2 for Blended English Language Learning (UTAUT2-BLE) model is proposed (see Figure 4). This study is the first to examine all seven UTAUT2 factors (Venkatesh et al., 2012) with the attitude construct from TAM (Davis et al., 1989) as a mediator in an ESL/EFL blended learning context. It addresses the theoretical gap confirmed by a global bibliometric analysis, which found that acceptance research in blended English language education has focused narrowly on basic TAM constructs and that the mediating role of attitude between acceptance factors and behavioural intention remains insufficiently explored (Ng et al., 2026). Furthermore, by examining acceptance factors rather than effectiveness, the UTAUT2-BLE model addresses the knowledge gap in Malaysian tertiary ESL blended learning research, where acceptance factors have received limited attention and only (Ong et al., 2019) had previously investigated learner acceptance.

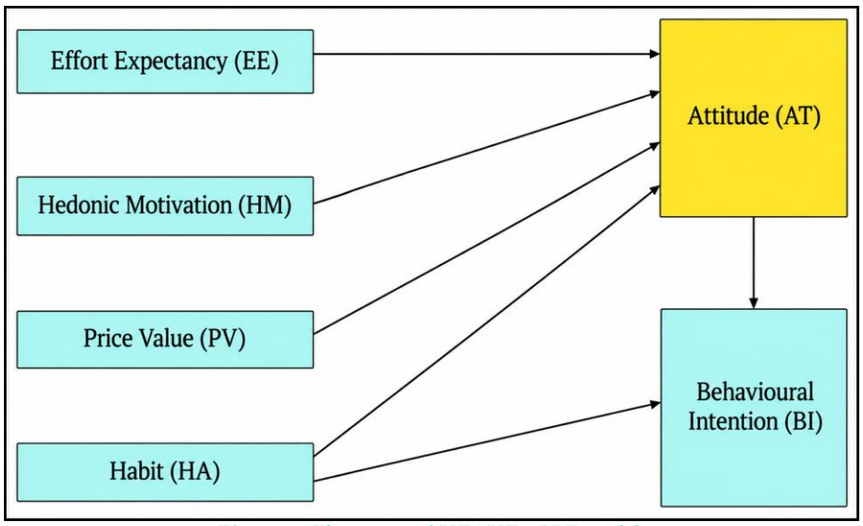


Figure 4. The proposed UTAUT2-BLE model.

The model also addresses all three limitations of the only prior Malaysian tertiary ESL blended learning acceptance study, Ong et al. (2019). First, the UTAUT2-BLE model achieves good model fit (RMSEA = 0.056, CFI = 0.947, χ^2/df = 2.655). Second, the model is developed based on a nationally representative sample drawn from all five geographical regions of Malaysia (n = 524) using stratified random sampling, ensuring greater generalisability compared to the Ong et al. (2019) study. Third, as pedagogy redevelopment of blended learning is mandatory in the post-COVID era (Tan et al., 2022), the UTAUT2-BLE model, developed from post-pandemic data, reflects learners' current blended learning needs. Therefore, the model may offer practical guidance for implementing blended learning in ESL/EFL and other language learning contexts globally.

7. Conclusion

This study integrated the attitude construct from TAM (Davis et al., 1989) into UTAUT2 (Venkatesh et al., 2012) to examine factors affecting undergraduate ESL learners' attitude and behavioural intention to use blended learning in English proficiency courses at Malaysian public universities. The findings confirmed that attitude has a mediating role in blended learning acceptance, with habit, price value, effort expectancy, and hedonic motivation as factors that shape ESL learners' attitude, which in turn drives their behavioural intention. Based on these findings, this study proposes the UTAUT2-BLE model. This model offers guidance to ESL educators, course designers, and policymakers as they implement blended learning in English proficiency courses. In doing so, both the theoretical and knowledge gaps in this field are addressed. Practically, educators should strengthen effort expectancy, hedonic motivation, price value, and habit through low-barrier digital activities, enjoyable multimedia content, demonstrating the educational value of blended learning, and consistent weekly routines, while redesigning blended learning to include more meaningful language tasks, collaborative activities, and adequate institutional support to activate performance expectancy, social influence, and facilitating conditions.

This study has several limitations. The quantitative survey design is suitable for identifying predictive relationships between variables (Creswell, 2015), but it cannot explain why some findings were non-significant. Future qualitative or mixed-methods studies, ideally paired with experimental designs, could clarify why performance expectancy, social influence, and facilitating conditions did not significantly affect attitude. Such studies could also test whether these factors become significant once blended learning activities move beyond basic administrative functions to include more meaningful and highly interactive English learning tasks. Additionally, this study did not examine potential moderating variables. Future research should investigate self-directed learning readiness as a moderator. Investigating this moderator is particularly important because learners must rely on self-directed learning when learning is unsupervised, as in the asynchronous online component shared by blended learning and massive open online courses. Learners who differ in self-directed learning readiness may therefore respond differently to the factors that shape their attitude. Finally, this study examined a blended learning context without AI integration. The Thirteenth Malaysia Plan 2026 – 2030 highlights that AI is a catalyst for agile and effective learning systems (Ministry of Economy Malaysia, 2025); hence, future research should investigate how the

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factors within the UTAUT2-BLE model influence learners' attitude and intention to use AI-integrated blended learning.

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