

Article

Language Learning Strategies, Motivational Beliefs, and English Learning Achievement Among Thai University EFL Learners: A Structural Equation Modelling Analysis

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Abstract

This study investigated the structural relationships among language learning strategies (LLSs), motivational beliefs (MBs), and English language achievement (ELA) among first-year Thai university students learning English as a foreign language (EFL). Grounded in self-regulated learning, social cognitive, and expectancy-value theories, the study examined how LLSs and MBs jointly contribute to ELA. A quantitative cross-sectional design was used, with 913 participants from a public university in Thailand. Data were collected via a structured questionnaire measuring learners' cognitive, metacognitive, and social strategies; intrinsic motivation, extrinsic motivation, task value, and self-efficacy; and overall assessment of their perceived English learning achievement and self-rated English proficiency across the four language skills. Descriptive statistics, Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA), and Structural Equation Modelling (SEM) were conducted. Results indicated moderate use of LLSs, with cognitive and metacognitive strategies used more frequently than social strategies. Students reported moderate-to-high motivational beliefs, with task value emerging as the strongest dimension. EFA and CFA supported the reliability and construct validity of the measurement model. SEM analysis demonstrated excellent model fit and revealed that intrinsic motivation, task value, and self-efficacy significantly predicted strategy use and ELA. LLSs showed the strongest direct effect on achievement, whereas extrinsic motivation had no significant direct effect. In addition, LLSs partially mediated the effects of intrinsic motivation, task value, and self-efficacy on achievement. The SEM results indicated that ELA is shaped by the combined influence of adaptive motivation and effective strategic behaviour. Therefore, instructional interventions should synchronously enhance strategic language learning and increase learners' motivational beliefs to promote English learning achievement.



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Keywords: language learning strategies; motivational beliefs; English achievement; structural equation modelling; Thai EFL learners

1. Introduction

English has become the dominant global lingua franca in higher education, research, and professional communication. English proficiency enables university students to access research publications, engage in international efforts, and compete beyond their home country (Foley, 2022; Galloway & Rose, 2015; Rose & McKinley, 2018). As a result, in countries

where English is a foreign language, such as Thailand, English proficiency has become a crucial academic skill. In Thailand, there is a growing emphasis on English as an important graduate attribute in universities, with English courses included in many undergraduate programmes across disciplines (Darasawang, 2007; Wongsothorn et al., 2002). However, despite these institutional initiatives, insufficient reading, writing, and communication skills in English persist among many university students in Thailand (Fitzpatrick, 2011; Sukying, 2021). These persistent challenges point to a need for greater consideration of learner-related factors that shape the course of English learning in higher education.

This transition from secondary school to university marks a major turning point in learners' academic progress. First-year university students typically face greater academic pressure, higher expectations for independent learning, and more demanding English language tasks. However, evidence suggests that many students enter university with little, if any, experience of self-regulated learning and inadequate language management strategies (Oxford, 2011; Pintrich, 2004). Moreover, students' motivation to learn English can fluctuate during this transition, leading to disengagement and a loss of perseverance. These challenges highlight the need to examine learner-internal variables that may explain why some university learners are more successful than others in English learning achievement, especially their use of language learning strategies and motivational beliefs.

Individual differences have also been recognised as important influences on language learning outcomes in second language acquisition (SLA) (Dörnyei & Ryan, 2015; Ortega, 2009). Among these differences, language learning strategies and motivational beliefs have attracted considerable attention from both theoretical and empirical perspectives. Language learning strategies are intentional behaviours and methods that learners use to support language learning and enhance performance. These strategies are commonly grouped into three categories: cognitive, metacognitive and social (Griffiths, 2013; O'Malley & Chamot, 1990). Cognitive strategies involve manipulating learning materials, such as summarising, note-making, and reciting. Metacognitive strategies involve planning, monitoring and evaluating learning processes, while social strategies involve interaction and collaboration that enable language learning. Many earlier studies have claimed (Green & Oxford, 1995; Habók & Magyar, 2018) that students who use learning strategies more frequently (especially metacognitive strategies) tend to perform better in language proficiency and academic performance.

Another central component of language learning success is motivational beliefs. These include intrinsic motivation, extrinsic motivation, task value, and self-efficacy (Bandura, 1997; Chen et al., 2026; Eccles & Wigfield, 2020; Pintrich & De Groot, 1990). Intrinsic and extrinsic motivation, derived from self-determination theory, explain learners' internal and external motives for learning English (Deci & Ryan, 2000). Task value, based on expectancy-value theory, reflects learners' perceptions of the importance and usefulness of learning English (Eccles & Wigfield, 2020). Self-efficacy, grounded in social cognitive theory, involves the belief in one's ability to perform language learning tasks successfully (Bandura, 1997). From a self-regulated learning perspective, these constructs are theoretically attuned since they jointly explain how learners initiate learning, sustain effort, regulate strategy use, and respond to learning challenges (Pintrich & De Groot, 1990; Zimmerman, 2000). Therefore, this study defines motivational beliefs as a multidimensional construct comprising intrinsic and extrinsic motivation, task value, and self-efficacy. Studies also indicate that students with high self-efficacy who perceive a task as valuable are likely to persist longer, invest more effort, and perform better academically (Teng & Zhang, 2018; Zhang & Papi, 2021).

In the context of SRL, language learning strategies and motivational beliefs are closely linked. SRL defines learning as an active process that involves regulating cognition, moti-

vation, and behaviour (Zimmerman, 2000). Motivational beliefs influence learners' strategy use, and attributing successful learning to the strategy used can increase learners' confidence and motivation (Zhou & Thompson, 2023). Research has found a theoretical connection between language learning strategies and motivational beliefs; however, researchers have often studied LLS and motivational beliefs separately rather than within a single framework (Chen et al., 2026). Consequently, the interactive and mediating mechanisms between these variables have not been fully addressed, especially in EFL contexts such as Thailand.

Additionally, there has been a rich methodological and conceptual debate about research on language learning strategies. Some contend that the frequency of strategy use may not be sensitive to how well a given strategy works and prefer measures that place less emphasis on sheer frequency (Tseng et al., 2006; Yamamori et al., 2003). Moreover, findings on the influence of motivation on second language acquisition are inconsistent. Studies on motivation indicate that it directly influences language achievement, whereas other studies propose an indirect influence through learning strategies or self-regulatory mechanisms (Pawlak & Oxford, 2018; Teng & Zhang, 2020). This contrast highlights the benefit of methods with a broader scope that can simultaneously examine both direct and indirect relationships.

Structural equation modelling (SEM) is a rigorous statistical framework that enables researchers to examine the mediating effects of variables by modelling complex relationships among multiple variables (Kline, 2016). SEM allows researchers to examine the direct and indirect relationships among language learning strategies, motivational beliefs, and learning achievement within a single integrated model. Similar SEM-based studies have indicated that motivational beliefs might mediate the link between strategy use and academic performance (Alrabai, 2015; Wang et al., 2017). However, few studies have employed SEM to explore these relationships among Thai university EFL learners during their higher education transformation. Hence, a structural equation modelling approach is required to more comprehensively explain the relationships among language learning strategies, motivational beliefs, and English learning achievement.

2. Literature Review

2.1. Language Learning Strategies (LLSs)

Research on language learning strategies (LLSs) is an enduring topic in second language acquisition research, as it explains how learners gain control of their learning by organising and regulating their efforts towards improvement. Learning Strategies (LLSs) are usually defined as conscious, goal-directed mental operations used by learners to enhance their success in understanding, remembering, retrieving and using knowledge of a language (Oxford, 2017). Throughout the process, successful learners do not learn passively; they plan tasks, monitor progress, solve linguistic problems, and modify their behaviour in response to learning requirements.

In early scholarship, strategies were viewed as behaviours learners employ to deal with language learning tasks (O'Malley & Chamot, 1990; Rubin, 1975). A few years later, Oxford's (2011) taxonomy became highly influential in distinguishing direct strategies (memory, cognitive, compensation) from indirect strategies (metacognitive, affective, social). Despite its global prominence, scholars have since argued that Oxford's taxonomy is better understood as a process informed by context, task demands, and learner agency rather than as a checklist (Griffiths, 2013; Thomas & Rose, 2019). The present overhaul closely follows the theory of self-regulated learning (SRL). Oxford's (2017) Strategic Self-Regulation model incorporates cognition, metacognition, motivation, and affective and social dimensions, arguing that good language learners not only use more strategies but

also choose, orchestrate, and assess them adaptively. For instance, Zimmerman (2000) likewise portrayed effective learners as active agents who demonstrate appropriate goal-setting, self-regulation of effort and performance, and self-reflection. In this way, LLSs can be regarded as behavioural manifestations of general self-regulatory abilities.

LLSs are depicted in this study as having three dimensions: cognitive, metacognitive, and social strategies. Cognitive strategies include summarising, inferring, taking notes, revising, and using resources. Metacognitive strategies involve planning, monitoring, and evaluating learning. Social strategies include cooperative, constructive, and communicative approaches. These categories remain theoretically robust and empirically relevant in the domain of university EFL (Griffiths, 2013; Teng & Zhang, 2020).

Many studies have found that LLS use is positively associated with language achievement. One of these elements has been shown to predict outcomes: metacognitive strategies support efficient time management, comprehension monitoring, and the adaptive revision of ineffective methods (Anderson, 2002; Teng & Zhang, 2016). Cognitive strategies lead to deeper processing and retention, and social strategies create greater opportunities for negotiation of meaning and feedback.

The frequent use of strategies often linked to higher language achievement, but frequency alone should not be regarded as an adequate indicator of strategic capacity. Tseng et al. (2006) suggested that quantity, situation-specificity, and regulation of strategy use may matter more than reporting frequency. Griffiths (2013) also argued that successful learners are not defined by the frequency of strategy use. Instead, successful learners demonstrated the ability to select and apply strategies flexibly and effectively to meet situational and task demands. Thus, strategy use in this study is conceptualised not just as frequency of reported strategy use, but as part of learners' wider self-regulated engagement with English learning.

Strategic learning is particularly relevant in Thailand, where many learners have limited opportunities to encounter or use authentic English outside formal schooling. Sukying (2021) found that Thai university students typically justify their use of strategies as falling within the metacognitive and cognitive categories rather than the social category. This pattern may reflect a test-focused education system, teacher-directed instruction, and learners' reluctance to speak in public. Thus, investigating LLSs among Thai university learners remains both theoretically and pedagogically important.

2.2. Motivational Beliefs in English Language Learning

Motivational beliefs are another broad factor that influences language success. As Dörnyei and Ushioda (2021) note, motivation shapes decision-making, effort, persistence, and emotional responses in language learning and its future application. Motivational beliefs are particularly significant in higher education settings, given the sector's characteristics, including later-teenage and early-adult students who are beginning to take greater ownership of their learning and life paths, thereby energising strategic behaviour and persistence. In this study, motivational beliefs are defined and framed by four constructs: intrinsic motivation (IM), extrinsic motivation (EM), task value (TV), and self-efficacy. These dimensions are grounded in self-determination theory, expectancy-value theory, and social cognitive theory.

Intrinsic motivation can be described as learning for pleasure, interest, or challenge, or as satisfaction derived from within (Ryan & Deci, 2020). Intrinsically motivated learners, those who are engaged, explore beyond the minimum requirements and persist longer. Extrinsic motivation means learning for grades, certificates, family expectations, or job opportunities. Extrinsic motivators, though often seen as less robust than intrinsic motiva-

tion, can be well-founded and meaningful to learners when external goals are internalised (Dörnyei & Ushioda, 2021).

Task value concerns learners' judgements of whether English is useful, important or relevant (Eccles & Wigfield, 2020). For university students, English may be necessary for work (including employability), postgraduate study, mobility, international communication, and global participation. The more value learners perceive, the more they will invest in sustained effort.

Self-efficacy is a belief in one's ability to perform tasks successfully (Bandura, 1997). Self-efficacy is one of the strongest predictors of taking on difficult tasks, persisting in the face of failure, recovering from setbacks, and engaging in strategic depth when acquiring a second language (EFL). Self-efficacy is regarded as one of the strongest motivational predictors of achievement. This may be because it directly sways learners' willingness to start learning tasks, invest effort, endure with difficulty, and use effective learning strategies.

Recent research highlights the significance of these beliefs in Asian EFL settings. Growth mindset, self-efficacy and intrinsic value predicted SRL and English achievement (Bai & Wang, 2023). Guo et al. (2023) employed path analysis to test a structural equation model of SRL and achievement, finding that motivation and grit were jointly predictors of both constructs. Chen and Sukying (2024) reported positive associations between intrinsic motivation and self-efficacy, and between each and SRL and English achievement among Chinese learners. Most recently, Chen et al. (2026) used SEM to show that intrinsic motivation and self-efficacy strongly predicted goal setting and regulation, including the intensity of monitoring effort and effort regulation, and that these variables ultimately predicted English achievement among Chinese high school students. Overall, these results imply that motivation is more than a background characteristic; it is a psychological resource that actively shapes learners' strategic engagement and perseverance in the face of difficulty.

2.3. Relationships Between LLSs, Motivational Beliefs, and English Learning Achievement

Current theory positions success in language learning as a product of interdependent cognitive, motivational and behavioural systems. According to the self-regulated learning perspective, effective language learning involves the regulation of both cognition and motivation. Therefore, learners' use of LLSs may be more beneficial when supported by positive motivational beliefs, including task values, self-efficacy, and confidence (Pintrich, 2004; Zimmerman, 2000).

Therefore, LLSs are repeatedly associated with achievement, as they facilitate learning processes through input processing, control of conditions, and maximisation of opportunities for practice. However, strategy alone is not enough if learners do not persevere in this behaviour. Motivational beliefs often explain why some students employ strategies while others do not.

Empirical evidence supports this interaction. Learners with stronger self-efficacy beliefs use more metacognitive strategies, for example, planning and monitoring (Teng, 2022). Because English represented task value for learners to a greater extent, the stronger the tasks are, the more value they are perceived to have, the more time they invest, and the greater their persistence (Eccles & Wigfield, 2020). Intrinsic motivation engages a curious mind, while extrinsic motives may drive effort if tied to points of meaning.

Recent structural studies have provided more compelling evidence. Indirectly, self-efficacy and intrinsic value may help sustain high levels of academic achievement in English through SRL processes (Bai & Wang, 2023). Motivation and academic emotions predict self-regulated learning among Chinese EFL Learners (Shen et al., 2026). Self-efficacy was a strong predictor of all SRL strategies, whereas intrinsic motivation predicted monitoring and effort regulation (Chen et al., 2026). SRL strategies subsequently strongly predicted

English achievement and mediated motivational influences. These results are particularly important, as they show that motivational beliefs operate through strategic behaviour to yield performance.

While most previous work has been confined to Chinese, Hong Kong, or Western contexts, little effort has been made to comprehensively examine these relationships among Thai university EFL learners. This is important because Thai undergraduate learners typically transition from predominantly teacher-directed secondary education to less teacher-guided university learning. Insight into how motivation and strategies interact to shape achievement may thus be particularly useful for understanding adjustment and success in higher education.

2.4. Research Gap and Hypothesis Development

While previous studies indicate that LLSs and motivational beliefs affect language achievement, gaps remain. Although some studies investigate the influence of both, many treat these strategies or motivational types in isolation, arguing that each affects behaviour independently and without examining their integration within a structural model. Second, few studies have examined whether EFL learners at Thai universities must all adapt to their unique transitional education. Third, while the Chinese secondary education field has relatively recent evidence of mediation through SRL strategies (Chen et al., 2026), there is limited equivalent evidence in a Southeast Asian university context. The question of which mechanisms operate among Thai undergraduates, however, remains open.

This study addresses these gaps by testing direct and indirect relationships among LLSs, motivational beliefs, and English learning achievement using Structural Equation Modelling (SEM). As presented in Figure 1, the hypothesis model draws on the theoretical frameworks of self-regulated learning, social cognitive, and expectancy-value theories. Motivational beliefs may influence learning strategy use by encouraging learners' willingness to start, withstand, and regulate learning strategy use. Learners with stronger self-efficacy and higher task value are more prone to invest effort in planning, monitoring, applying, and seeking help. Still, the relationship may also be reciprocal. Successful strategy use can promote confidence and motivation over time. Hence, this study postulates the directional path from motivational beliefs to LLSs. Specifically, LLSs are learners' strategic behaviours (cognitive, metacognitive, and social). Motivational beliefs include intrinsic motivation, extrinsic motivation, task value, and self-efficacy. Perceived and self-reported performance are operationalised as measures of English learning achievement.

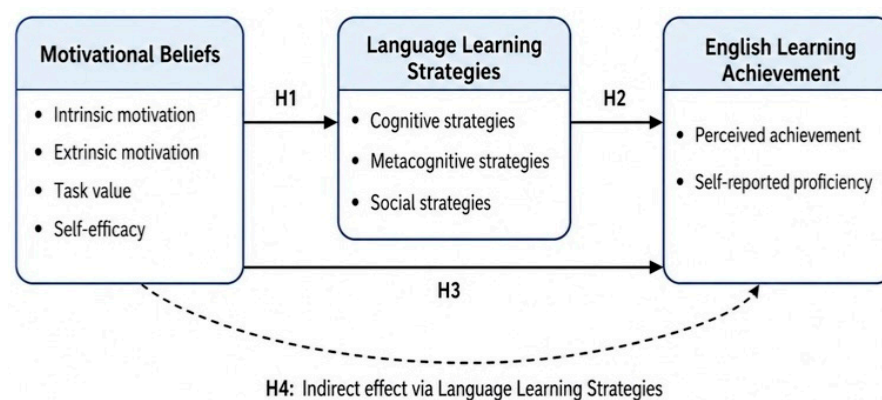


Figure 1. Hypothesis model.

The study addresses the following research questions:

1. What are the levels of MBs about English learning?
2. To what extent do MBs predict LLSs?

3. To what extent do MBs and LLSs predict English learning achievement?
4. Do LLSs mediate the relationship between MBs and English learning achievement?

Based on the proposed model, the following hypotheses are proposed:

- H1.** *MBs significantly predict LLSs among Thai university EFL learners.*
- H2.** *LLSs significantly predict English learning achievement.*
- H3.** *MBs significantly predict English learning achievement.*
- H4.** *LLSs mediate the relationship between MBs and English learning achievement.*

3. Research Methods

3.1. Research Design

The current research utilised a quantitative, cross-sectional, correlational design to investigate the relationships between language learning strategies (LLSs), motivational beliefs, and English learning achievement among Thai university EFL learners. The rationale for the data collection method was that a quantitative approach would allow us to systematically measure latent constructs and test hypothesised relationships using statistical methods. A correlational design was chosen because the study intended to investigate naturally occurring relationships among variables without manipulating any experimental conditions (Creswell & Creswell, 2018).

Structural Equation Modelling (SEM) was used as the principal analytical method to investigate the proposed relationships. SEM was chosen because it enables researchers to simultaneously analyse complex relationships among several latent variables, assess measurement error, and evaluate both direct and indirect effects within a single coherent model (Hair et al., 2019; Kline, 2016). This strategy is particularly suitable for studies of mediation effects and theories comprising several constructs. This paper examined the structural relationships among language learning strategies, motivational beliefs, and English learning achievement using SEM, and the mediating effect of motivational beliefs.

Before testing the structural model, we calculated descriptive statistics and conducted correlation analyses to summarise data characteristics and examine preliminary relationships among variables. A Confirmatory Factor Analysis (CFA) was performed to confirm the hypothesised construct validity. This sequential analytical process ensured a rigorous methodological approach and compliance with SEM best practice.

3.2. Participants and Context

A total of 913 first-year students in Thailand taking compulsory English courses at a public university were the participants in this study. Convenience sampling was employed and this university was selected because it represents a typical Thai public university EFL context where English is instructed as a compulsory general education subject across academic disciplines. Of 913 students, 295 (32.3%) were male, 612 (67.0%) were female, and 6 (0.7%) identified as other gender. The participants in the study were aged 19–20 years, providing a representation of the first-year university transition from secondary education to out-of-home higher learning.

Participants included faculty from technology, the humanities and social sciences, education, business, political science, law, fine arts and engineering. This interdisciplinary mix broadened the sample's representativeness and improved the generalisability of any findings to other disciplines. The chosen university exemplifies a conventional Thai EFL context, where English is learned as a foreign language and is obligatory for undergraduate

academic studies. English proficiency is regarded as an indispensable skill for academic achievement, career advancement and global communication.

Structural equation modelling deemed a sample size of 913 participants appropriate for the purpose. Because SEM typically requires large sample sizes for stable parameter estimation and adequate statistical power (Hair et al., 2019; Kline, 2016), the present study therefore had a large sample size, which increased the reliability and robustness of the analyses.

Participation in the study was entirely voluntary. The purpose and nature of the study, as well as participants' rights, including the right to withdraw from the research without penalty at any time, were explained. To guarantee anonymity and candid responses, all questionnaires were completed anonymously, with no personally identifiable information collected. Data collection was ethically sensitive.

3.3. Instruments

For data collection, a structured self-report questionnaire served as the primary instrument. The questionnaire comprised four sections covering demographic information, LLSs, motivational beliefs and English learning achievement. Unless specified otherwise, all items were rated on a five-point Likert scale.

3.3.1. Demographic Information Questionnaire

The first section, titled "Demographic," presented background information on the participants, including age, gender, faculty of study, and English achievement course scores. The data were used to describe the sample characteristics and to interpret the results. The demographic data also provided a clearer understanding of learners' academic environments and supported subgroup comparisons.

3.3.2. Language Learning Strategy Questionnaire

The Language Learning Strategy (LLS) Questionnaire was used to analyse students' use of language learning strategies. The instrument was based on earlier instruments with a solid theoretical foundation proposed by and O'Malley and Chamot (1990), which conceptualised language learning strategies as cognitive, self-regulated and social processes that support language learning.

Additionally, the questionnaire comprised 21 items, divided into three dimensions: cognitive strategies, metacognitive strategies, and social strategies. Cognitive strategies (e.g., processes that learners used to analyse, practise, summarise, and review language input) were assessed. Learners used metacognitive strategies to assess their capacity for planning, monitoring, and evaluating the learning process. Social strategies measured learners' involvement with their peers and teachers, such as asking questions, seeking clarification, and collaborating with others.

Participants responded to each item on a five-point Likert-type scale, ranging from 1 (strongly disagree) to 5 (strongly agree). This scale allowed measurement of the frequency of overall strategy use. The Oxford Strategy Inventory for Language Learning (OSILL) provided a multidimensional assessment of participants' strategic behaviours in English learning.

3.3.3. Motivational Beliefs Questionnaire

The Motivational Beliefs Questionnaire was assessed using a 20-item scale derived from Pintrich and De Groot (1990) and the Motivated Strategies for Learning Questionnaire (MSLQ). The scale measured learners' motivational orientations towards learning English.

The scale comprised four subscales: intrinsic motivation, extrinsic motivation, task value, and self-efficacy. Intrinsic motivation was defined as learners' interest in learning the language and enjoyment of the learning process. Extrinsic motivation was measured

by learners' external goals, such as academic achievement and innovation. Learners' perceptions of the usefulness and importance of learning English were assessed through task value. Self-efficacy was measured by learners' beliefs in their ability to successfully perform English-learning tasks. All items used a five-point Likert-type scale, ranging from 1 (strongly disagree) to 5 (strongly agree). This instrument enabled a more comprehensive evaluation of learners' motivational beliefs about learning English.

3.3.4. English Learning Achievement

Perceived and self-reported indicators were used to assess English learning achievement. Perceived achievement comprised five items that captured learners' overall perception of their English learning performance. Self-reported achievement measured learners' perceived competency in four skills: listening, speaking, reading and writing. Participants rated their skills from 1 (poor) to 5 (excellent). Furthermore, one item gauged how much students felt their English learning had improved over time. These measures represented learners' general judgement of their English learning performance.

3.4. Validity and Reliability

To establish instrument quality, a number of validity and reliability procedures were conducted. The first step was to establish content validity through an expert review. Three experts in English language teaching and educational psychology reviewed the questionnaire items for clarity and relevance, and the instrument was slightly modified based on their feedback. Second, Confirmatory Factor Analysis (CFA) was used to assess construct validity. Standardised factor loadings above 0.50 are considered acceptable (Hair et al., 2019). Convergent validity was assessed using Average Variance Extracted ($AVE \geq 0.50$) and Composite Reliability ($CR \geq 0.70$). Discriminant validity was further evaluated using the Fornell-Larcker criterion.

Internal consistency reliability was evaluated using Cronbach's alpha, representing the third level. Reliability values above 0.70 were considered acceptable, as indicated by Cronbach's alpha coefficients (Nunnally & Bernstein, 1994). These procedures ensured the accuracy and reliability of the measurement tools employed.

3.5. Data Collection Procedure

After securing the institution's approval and obtaining informed consent from each participant, data collection commenced. To maximise response rates, all questionnaires were distributed during regular English classes. Participants were appropriately instructed and given ample time to complete them. Data were checked for completeness and accuracy following data collection. Questionnaires were excluded if they were incomplete or invalid. The cleaned data were coded and entered into SPSS (Version 29) (Statistical Package for the Social Sciences) for preliminary analysis. Confirmatory Factor Analysis (CFA) and Structural Equation Modelling (SEM) were then conducted using AMOS.

3.6. Data Analysis

To ensure a thorough and systematic examination of the associations among LLSs, MBs, and English learning achievement, data analysis was conducted in multiple sequential stages. All statistical analyses were conducted using IBM SPSS Statistics (version 29) for the preliminary analyses and IBM SPSS AMOS (version 29) for Confirmatory Factor Analysis (CFA) and Structural Equation Modelling (SEM).

First, descriptive statistics were calculated to summarise demographic characteristics and the distributions of key variables among participants. Distributions and normality assumptions were assessed using means, standard deviations, frequencies, skewness, and kurtosis; mean scores on the five-point Likert scale were interpreted using conven-

tional interval-classification procedures. A 5-point Likert-type scale was employed, with 1 indicating strong disagreement and 5 indicating strong agreement. Based on the lowest and highest scores, interpretation ranges were developed: very low (1.00–1.80), low (1.81–2.60), moderate (2.61–3.40), high (3.41–4.20), and very high (4.21–5). This classification allowed interpretation of participants' LLSs, MBs, and English learning achievement (Boone & Boone, 2012; Creswell & Creswell, 2018).

Secondly, we conducted Exploratory Factor Analysis (EFA) to assess the suitability of factor analysis for our sample and to explore the underlying factor structure of the measurement items. The Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Bartlett's Test of Sphericity were applied prior to factor extraction to assess data adequacy. The KMO index indicates whether factor analysis is appropriate; values greater than 0.60 are considered reasonable, and those above 80 fall within the adequate merit range (Kaiser, 1974). As a rule, Bartlett's Test of Sphericity tests whether the observed correlation matrix is significantly different from an identity matrix; a significant result ($p < 0.05$) shows that the variables are correlated enough to perform a factor analysis. Table 1 presents the results of these tests, validating the dataset's adequacy for EFA.

Third, Confirmatory Factor Analysis (CFA) was used to assess the measurement model and construct validity. The measurement model comprised three latent constructs for language learning strategies (cognitive, metacognitive, and social strategies), four latent constructs for motivational beliefs (intrinsic motivation, extrinsic motivation, task value, and self-efficacy), and indicators of English learning achievement. Model fit was evaluated using multiple fit indices, including the ratio of chi-square to degrees of freedom (χ^2/df), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), and Standardised Root Mean Square Residual (SRMR). Acceptable standardised model fit indicators: $\chi^2/\text{df} < 0.00$, CFI and TLI ≥ 0.90 , RMSEA ≤ 0.08 , and SRMR ≤ 0.08 (Hair et al., 2019; Kline, 2016).

Convergent validity was estimated using standardised factor loadings, Average Variance Extracted (AVE), and Composite Reliability (CR). Factor loadings of 0.50 or higher were deemed acceptable, while AVE values of 0.70 or higher indicated satisfactory convergent validity and internal consistency (Hair et al., 2019). Discriminant validity was assessed using the Fornell-Larcker criterion, and it was determined that the square root of each construct's AVE exceeded the correlations among constructs.

Fourth, Structural Equation Modelling (SEM) was conducted to examine the proposed structural relationships among language learning strategies, motivational beliefs, and English learning achievement. The structural model analysed the direct effects of language learning strategies and motivational beliefs on English learning achievement (ELA), as well as the direct effect of motivational beliefs (MBs) on ELA. The same fit indices were used to evaluate the model at this stage, consistent with SEM. All structural relationships among variables were interpreted using standardised path coefficients, together with standard errors and significance levels. The final portion examined the indirect effects of language learning strategies on English learning achievement via motivational beliefs, using bootstrapped mediation analysis. Indirect effects and 95% bootstrap confidence intervals were estimated using a bias-corrected bootstrap with 5000 resamples. Significant mediation was defined as a confidence interval that did not include zero. This method provided a robust test of the mediating influence of motivational beliefs on the relationship between LLSs and English learning achievement.

These analytical procedures helped to confirm the reliability, validity and robustness of these findings and provided an in-depth exploration of how language-learning strategies and motivational beliefs synergistically influenced English-learning achievement among Thai university EFL learners.

4. Result

4.1. Descriptive Results

Descriptive statistics for LLSs, MBs and English language achievement (N = 913 Thai university EFL learners) are shown in Table 1. Means, standard deviations, skewness and kurtosis were included in the analyses. The means were as follows: 3.12 (SD = 0.63) for cognitive strategy (CS), 3.10 (SD = 0.89) for metacognitive strategy (MS), and 2.90 (SD = 0.71) for social strategy (SS). These results indicate that participants used LLSs at an intermediate level. MBs' raw means were as follows: IM, 3.38 (SD = 0.71); EM, 3.85 (SD = 0.74); TV, 4.22 (SD = 0.78); and SE, 3.72 (SD = 0.75). These results represent different MB levels, ranging from moderate to extremely high. Results also indicated that respondents perceived their English language achievement (ELA) as between high and moderate (M = 3.40, SD = 0.74) and their self-achievement as fair (M = 2.56, SD = 0.84). Additional information is provided in Table 1.

Table 1. Descriptive statistics of variables.

Item	Mean	SD	Skewness	Kurtosis
CS1	3.25	1.02	−0.071	−0.284
CS2	2.37	0.96	0.326	−0.229
CS3	2.58	0.93	0.223	−0.177
CS4	3.50	1.01	−0.356	−0.313
CS5	3.72	1.02	−0.513	−0.211
CS6	3.29	0.93	−0.024	−0.196
CS7	3.10	1.11	0.085	−0.685
Total	3.12	1.11	−0.097	0.323
MS8	3.19	0.94	0.054	−0.169
MS9	3.08	0.96	0.005	−0.177
MS10	3.16	0.92	0.025	−0.160
MS11	3.37	0.97	−0.228	−0.242
MS12	2.62	0.98	0.230	−0.194
MS13	2.86	0.98	0.091	−0.229
MS14	3.46	0.99	−0.150	−0.411
Total	3.10	0.89	−0.024	0.114
SS15	3.45	1.12	−0.355	−0.550
SS16	2.54	0.98	0.261	−0.239
SS17	3.08	1.17	−0.096	−0.770
SS18	2.72	1.08	0.191	−0.524
SS19	2.23	1.07	0.618	−0.261
SS20	3.39	1.18	−0.311	−0.661
Total	2.90	0.71	0.011	0.032
IM1	3.42	0.96	−0.210	−0.162
IM2	3.39	0.99	−0.146	−0.383
IM3	3.61	0.94	−0.305	−0.370
IM4	3.17	0.98	−0.030	−0.356
IM5	3.28	1.01	−0.149	−0.363
Total	3.42	0.96	−0.210	0.114
EM6	4.15	0.91	−0.882	0.196
EM7	4.09	0.92	−0.762	−0.040
EM8	3.86	0.97	−0.502	−0.422
EM9	3.79	1.01	−0.572	−0.175
EM10	3.36	1.11	−0.247	−0.606

Table 1. *Cont.*

Item	Mean	SD	Skewness	Kurtosis
Total	3.85	0.74	−0.519	−0.043
TV11	4.19	0.96	−1.083	0.640
TV12	4.26	0.90	−1.162	0.907
TV13	4.37	0.86	−1.402	1.720
TV14	4.24	0.90	−1.047	0.479
TV15	4.03	0.96	−0.776	0.159
Total	4.22	0.78	−1.026	0.707
SE16	3.39	0.95	−0.049	−0.205
SE17	3.46	0.96	−0.249	−0.151
SE18	3.90	0.95	−0.445	0.093
SE19	3.97	0.93	−0.750	0.295
SE20	3.89	0.93	−0.623	0.078
Total	3.72	0.75	−0.458	0.263
PA1	3.38	0.91	−0.190	0.016
PA2	3.31	0.99	−0.309	−0.205
PA3	3.66	0.92	−0.352	−0.182
PA4	3.03	0.99	−0.050	−0.168
PA5	3.62	0.95	−0.386	−0.167
Total	3.40	0.74	−0.289	0.196
SrA6	2.84	0.99	0.066	−0.038
SrA7	2.58	0.97	0.280	−0.220
SrA8	2.33	0.99	0.400	−0.223
SrA9	2.48	1.03	0.253	−0.471
Total	2.56	0.84	0.250	−0.031

4.2. Exploratory Factor Analysis (EFA)

EFA findings support the construct validity of the proposed three-factor model comprising English language learning strategies, motivational beliefs, and English learning achievement. Factor loadings for almost all items (≥ 0.50) were considered satisfactory for capturing the constructs of interest.

Metacognitive items had the strongest and most consistent loadings within the learning strategies factor, especially for progress monitoring (MS9 = 0.710), whereas cognitive and social strategy items showed moderate but acceptable loadings (CS5 = 0.637; SS19 = 0.679). In the motivational beliefs dimension, intrinsic motivation, extrinsic motivation, task value, and self-efficacy co-predicted coherently, with the highest loadings on the task value items (TV13 = 0.831; TV14 = 0.811), confirming its central position across situations and contexts.

The results provided evidence of convergent validity, with perceived progress (PA2 = 0.765; PA3 = 0.719) and self-rated language skills (between 0.745 and 0.761) loading strongly on achievement. However, before conducting the CFA, some items with zero loadings were modified or deleted to improve reliability and model fit. Results are presented in more detail in Table 2.

As shown in Table 3, the measures were suitable for factor analysis. The Kaiser–Meyer–Olkin (KMO) Measure of Sampling Adequacy was 0.950, exceeding the recommended threshold, indicating minimal intercorrelations and high shared variance among variables. This finding supports the sample size and the extraction of latent constructs. Bartlett’s Test of Sphericity was significant, χ^2 (1176) = 23,093.785, $p < 0.001$, indicating that the correlation

matrix differed significantly from an identity matrix. Together, these findings provide psychometric support for data factorability and justify conducting CFA and SEM.

Table 2. EFA results.

Dimension	Observed Variable	Label	Loading
Language Learning Strategies (LLSs)	CS1	Translating new words into Thai	0.543
	CS2	Using vocabulary cards or notes	0.000
	CS3	Practising grammar in sentences	0.000
	CS4	Highlighting key information	0.541
	CS5	Using online learning resources	0.637
	CS6	Focusing on main ideas	0.595
	CS7	Listening to English audio	0.000
	MS8	Setting study goals	0.568
	MS9	Monitoring learning progress	0.710
	MS10	Managing study time	0.638
	MS11	Adjusting study methods	0.638
	MS12	Reviewing materials in advance	0.618
	MS13	Evaluating lesson understanding	0.638
	MS14	Identifying learning weaknesses	0.625
	SS15	Asking classmates for help	0.504
	SS16	Participating in group activities	0.633
	SS17	Seeking teacher feedback	0.585
	SS18	Practising with friends	0.632
	SS19	Joining online communities	0.679
	SS20	Discussing English media with others	0.000
Motivational Beliefs (MBs)	IM1	Enjoying learning challenges	0.673
	IM2	Building self-confidence	0.653
	IM3	Feeling accomplishment	0.602
	IM4	Enjoying problem solving	0.702
	IM5	Enjoying the learning process	0.712
	EM6	Career benefits motivation	0.702
	EM7	Academic requirement motivation	0.721
	EM8	Family encouragement	0.579
	EM9	Meeting expectations	0.634
	EM10	Achieving high grades	0.635
	TV11	professional skill importance	0.774
	TV12	International communication value	0.807
	TV13	Future opportunities value	0.831
	TV14	Career investment value	0.811
	TV15	Educational importance of English	0.682
	SE16	Confidence in assignments	0.572
	SE17	Confidence with challenging materials	0.535
	SE18	Confidence through determination	0.535
	SE19	Effort leads to importance	0.556
	SE20	Overcoming learning difficulties	0.521
English Learning Achievement (ELA)	PA1	Perceived skill improvement	0.692
	PA2	Satisfaction with progress	0.765
	PA3	Perceived proficiency growth	0.719
	PA4	Confidence in real-life use	0.545
	PA5	Motivation for continued improvement	0.000
	SrA6	Self-rated reading ability	0.755
	SrA7	Self-rated listening ability	0.761
	SrA8	Self-rated speaking ability	0.745
	SrA9	Self-rated writing ability	0.753

Table 3. KMO and BTS test.

KMO Measure of Sampling Adequacy		0.950
BTS	Approx. Chi-Square	23,093.785
	df	1176
	Sig.	0.000

4.3. Confirmatory Factor Analysis (CFA)
4.3.1. Language Learning Strategies Measurement Model

CFA results for the LLSs model (CSs, MSs and SSs) are shown in Figure 2. Standardised factor loadings ranging from 0.45 to 0.71 are acceptable and adequately represent the latent constructs. The highest and most reliable loadings were observed for the factor representing Metacognitive strategies, indicating the need for planning, monitoring, and evaluation in language learning.

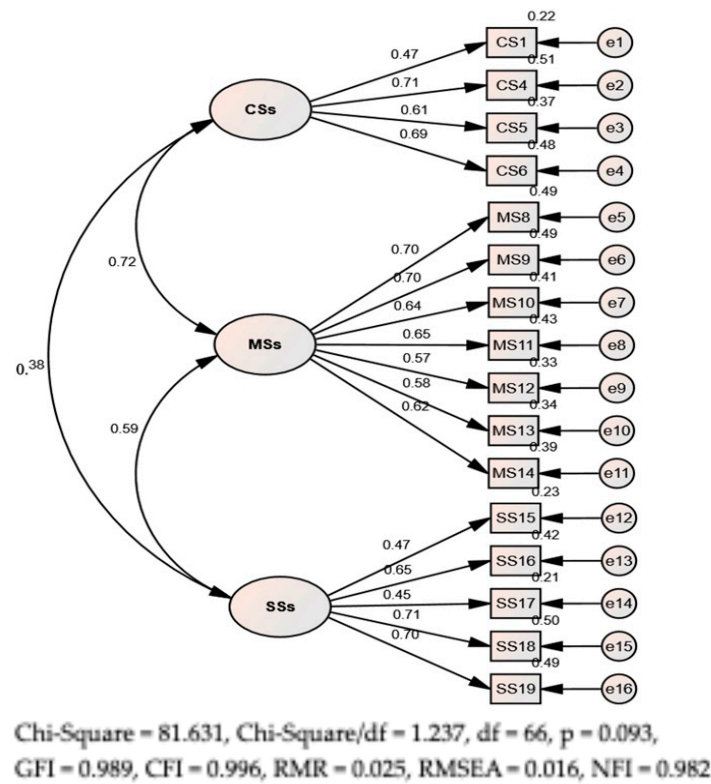


Figure 2. The CFA model of language learning strategies.

Positive and meaningful correlations were observed among latent factors. Cognitive and Metacognitive Strategies were related ($r = 0.72$), suggesting that self-regulation is also a prerequisite for actively processing language input (the more learners process the language input they are exposed to, the more they self-regulate). Moderate relations were found between Metacognitive and Social Strategies ($r = 0.59$) and between Cognitive and Social Strategies ($r = 0.38$).

The model provided a good fit: $\chi^2 = 81.631$, $\chi^2/df = 1.237$, GFI = 0.989, CFI = 0.996, and NFI = 0.982, all exceeding recommended thresholds. Residual-based indices also indicated a close fit (RMR = 0.025; RMSEA = 0.016). In summary, the results provided compelling support for the structural validity of the three-factor LLS model, establishing that learners' strategic behaviour is fully captured by the cognitive, metacognitive and social dimensions.

4.3.2. Motivational Beliefs Measurement Model

Figure 3 presents the CFA results for the Motivational Beliefs (MBs) construct, comprising Intrinsic Motivation (IM), Extrinsic Motivation (EM), Task Value (TV), and Self-Efficacy (SE). Factor loadings ranged from 0.65 to 0.87, exceeding recommended thresholds and indicating satisfactory convergent validity. Items loaded strongly on Intrinsic Motivation (e.g., IM1 = 0.79; IM3 = 0.80) and Extrinsic Motivation (EM6 = 0.77; EM7 = 0.73). Higher loadings were also observed for Task Value (TV12 = 0.84; TV13 = 0.87), indicating that learners considered English most relevant to their academic and career goals. Self-Efficacy showed consistent loadings (0.73–0.77), indicating that confidence in the ability to learn English remained stable.

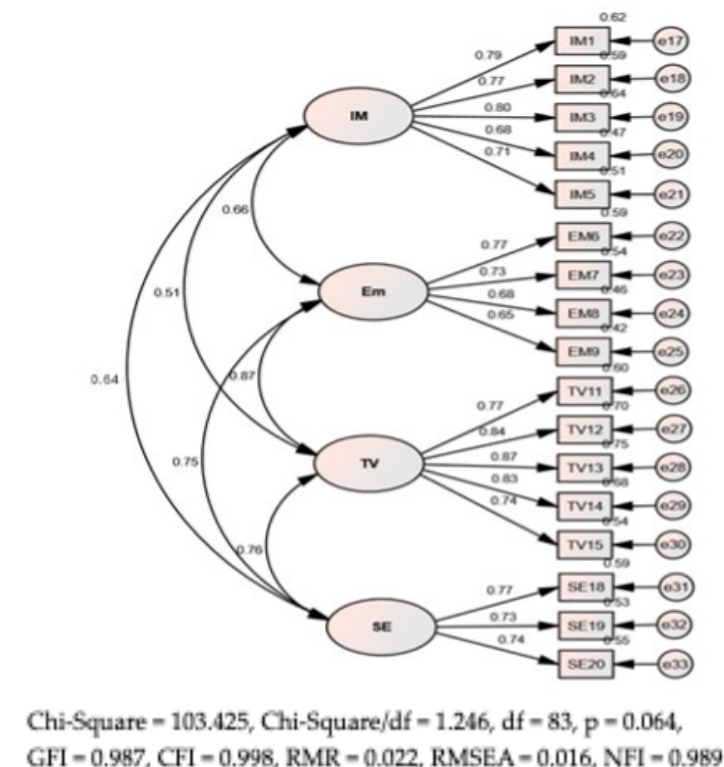


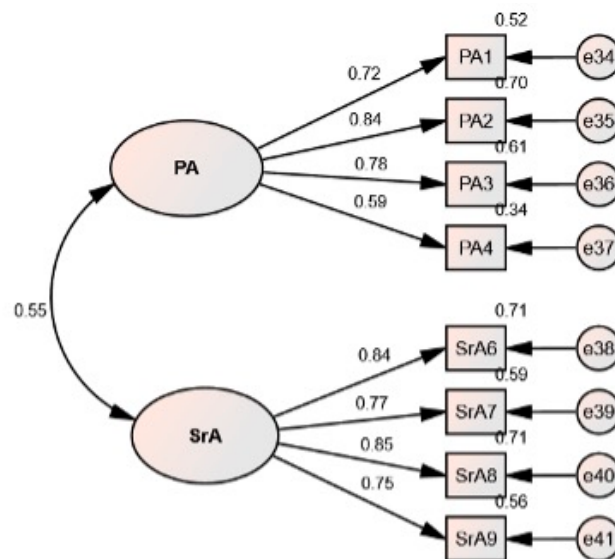
Figure 3. The CFA model of motivational beliefs.

Correlations were large and positive. Self-Efficacy was highly correlated with Task Value ($r = 0.76$) and with Extrinsic Motivation ($r = 0.87$), and the two variables were moderately correlated ($r = 0.51$). In addition, Intrinsic Motivation was positively correlated with Self-Efficacy ($r = 0.64$).

The model fit was excellent: $\chi^2 = 103.425$, $\chi^2/df = 1.246$, GFI = 0.987, CFI = 0.998, NFI = 0.989, RMR = 0.022, and RMSEA = 0.016. In summary, the results support the reliability and construct validity of motivational beliefs as a multidimensional construct, thereby justifying the subsequent structural analyses.

4.3.3. English Language Achievement Measurement Model

Figure 4 presents the CFA results for the English Language Achievement (ELA) construct, comprising Perceived Achievement (PA) and Self-Reported Achievement (SRA), are shown in Figure 4. Standardised factor loadings for PA ranged from 0.59 to 0.84, indicating good to excellent internal consistency, with PA2 loading highest (0.84). SRA showed more consistent and stronger loadings (0.75–0.85), indicating that self-assessments of listening, speaking, reading and writing were reliable indicators of learners' perceptions of their proficiency.



Chi-Square = 17.105, Chi-Square/df = 1.316, df = 13, $p = 0.195$,
GFI = 0.995, CFI = 0.999, RMR = 0.013 RMSEA = 0.019, NFI = 0.995

Figure 4. The iterative refinement of the CFA model for English learning achievement.

Across the three studies, the association between PA and SRA was moderate ($r = 0.55$), suggesting that the two dimensions were related yet conceptually distinct. While PA reflects confidence in learners' appreciation and overall performance development, SRA records an individual assessment of what they have learned for a particular skill.

The model fit the data well: $\chi^2 = 17.105$, ($\chi^2/\text{df} = 1.316$; GFI = 0.995, CFI = 0.999, NFI = 0.995, RMR = 0.013, and RMSEA = 0.019). Taken together, these results provide evidence of the two-factor ELA model's reliability, convergent validity and structural soundness, supporting its use in future SEM analyses.

4.4. Structural Equation Model (SEM)

This study examined hypothesised relationships among motivational beliefs, language learning strategies (LLSs), and English language achievement (ELA) by testing a structural equation model (SEM). Overall, the model fit the observed data well, thereby empirically validating the proposed theoretical framework. The fit indices were as follows: $\chi^2(606) = 655.034$, $p = 0.082$, $\chi^2/\text{df} = 1.081$, GFI = 0.965, CFI = 0.997, NFI = 0.966, RMSEA = 0.009, and RMR = 0.036. The non-significant chi-square, very low residual indices, and high comparative fit indices together indicated that the model was adequately specified, parsimonious, and a good fit to the sample covariance matrix.

Figure 5 showed that motivational beliefs, as structural paths, significantly predicted LLSs. Intrinsic Motivation (IM; $\beta = 0.45$, $\text{SE} = 0.05$, $p < 0.001$), Task Value (TV; $\beta = 0.39$, $\text{SE} = 0.06$, $p < 0.001$), and Self-Efficacy (SE; $\beta = 0.42$, $\text{SE} = 0.05$, $p < 0.001$) had moderate-to-strong positive effects on strategy use. Although less impactful, Extrinsic Motivation (EM) also showed a positive effect ($\beta = 0.18$, $\text{SE} = 0.04$, $p < 0.001$). These results suggest that students who appreciate English, take pleasure in learning, and believe in themselves adopt more cognitive, metacognitive, and social strategies.

For the direct effects on ELA, IM ($\beta = 0.21$, $p < 0.001$), TV ($\beta = 0.24$, $p < 0.001$), and SE ($\beta = 0.29$, $p < 0.001$) were significant positive predictors, whereas EM was not statistically significant. LLSs showed the largest direct effect on ELA ($\beta = 0.51$, $\text{SE} = 0.04$, $p < 0.001$), indicating that strategic learning behaviour is central to achievement outcomes.

Mediation analysis indicated that the effects of IM, TV, and SE on ELA were partially mediated by LLSs, whereas EM had only a minimal indirect effect. These results are

presented in Table 4. Overall, the findings support the model's theoretical and structural validity, showing that adaptive motivation predicts English achievement both directly and indirectly through strategic learning behaviour.

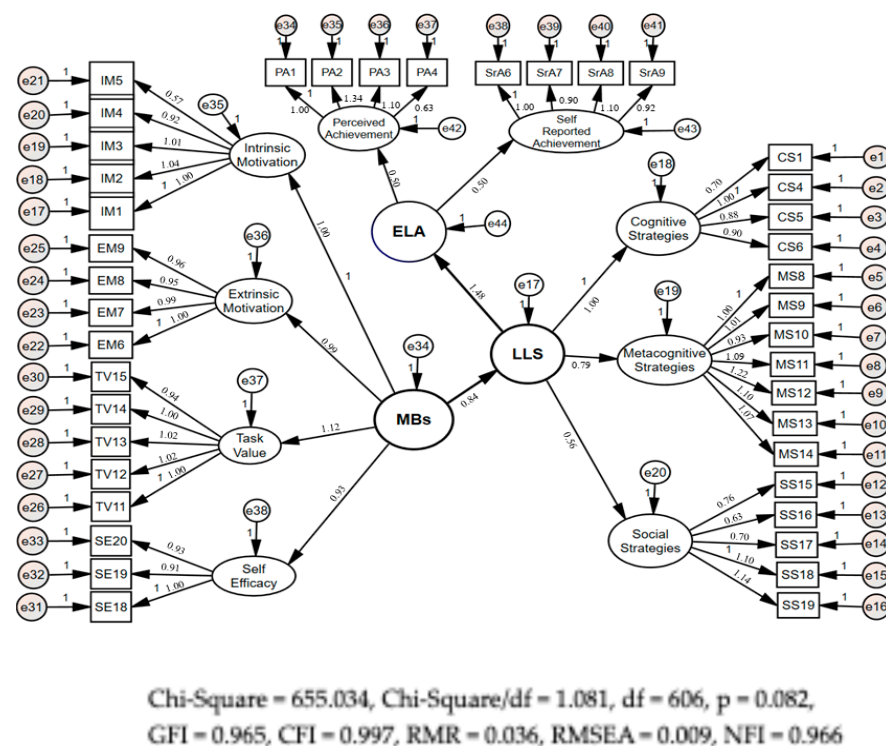


Figure 5. Standardised Path Coefficients in SEM Model.

Table 4. Direct, mediation, and moderation effect model.

Effect Type	Structural Path	β	SE	CR/z	p	Interpretation
Direct Effects	IM $\rightarrow$ LLSs	0.45	0.05	9.00	<0.001	Strong positive effect
	EM $\rightarrow$ LLSs	0.18	0.04	4.50	<0.001	Weak but significant effect
	TV $\rightarrow$ LLSs	0.39	0.06	6.50	<0.001	Moderate positive effect
	SE $\rightarrow$ LLSs	0.42	0.05	8.40	<0.001	Strong positive effect
	IM $\rightarrow$ ELA	0.21	0.05	4.20	<0.001	Moderate positive effect
	EM $\rightarrow$ ELA	0.07	0.04	1.75	0.080	Not significant
	TV $\rightarrow$ ELA	0.24	0.06	4.00	<0.001	Moderate positive effect
	SE $\rightarrow$ ELA	0.29	0.05	5.80	<0.001	Strong positive effect
	LLSs $\rightarrow$ ELA	0.51	0.04	12.75	<0.001	Very strong effect
Indirect (Mediated) Effects	IM $\rightarrow$ LLS $\rightarrow$ ELA	—	—	—	Significant	Partial mediation via LLS
	EM $\rightarrow$ LLS $\rightarrow$ ELA	—	—	—	Weak	Limited mediation
	TV $\rightarrow$ LLS $\rightarrow$ ELA	—	—	—	Significant	Strong mediation
	SE $\rightarrow$ LLS $\rightarrow$ ELA	—	—	—	Significant	Strong mediation
Covariates	IM $\leftrightarrow$ EM	—	—	—	—	Motivations coexist
	IM $\leftrightarrow$ SE	—	—	—	—	Confidence linked to interest
	TV $\leftrightarrow$ SE	—	—	—	—	Value linked to confidence
	TV $\leftrightarrow$ EM	—	—	—	—	External goals linked to value

Note. β = standardised path coefficient; SE = standard error; CR/z = critical ratio (z-value). Paths with $p < 0.05$ are considered statistically significant.

5. Discussion

This study examined the relationships among motivational beliefs (MBs), language learning strategies (LLSs), and English learning achievement among Thai university EFL learners. Overall, the SEM results provide support for the hypothesised relationships

among motivational beliefs, language learning strategies, and English learning achievement. The results suggest that motivational beliefs were significantly associated with learners' reported use of language learning strategies. The findings indicate that both motivational beliefs and language learning strategies enhanced English learning achievement within the proposed model. In addition, the mediation analysis discloses that language learning strategies acted as a mediating mechanism relating motivational beliefs to English learning achievement. Together, these findings align with the self-regulated learning perspective, which argues that successful learning encompasses the synchronised regulation of motivation, cognition, and strategic behaviour.

5.1. Motivational Beliefs and Learning English Among Thai University EFL Learners

The results showed that self-efficacy, extrinsic motivation, and intrinsic motivation were all moderate to high among the study participants, yet task value was rated highest ($M = 4.22$, $SD = 0.78$). This consistent pattern suggests that students were motivated to learn English not only because they wanted to, but also because they found English itself useful, significant for the future, and consequential. This motivational profile is particularly pertinent in today's Asian higher education context, where English is often framed as linguistic capital for employability, academic mobility, and social mobility (Dörnyei & Ushioda, 2021; Rose et al., 2018). The motivation here is less about pleasure and more about opportunity.

A very high task value score suggests that participants believe English is important for career advancement, postgraduate studies, international communication, and participation in a globalised economy. These results are particularly consistent with expectancy-value theory (Eccles & Wigfield, 2020; Wigfield & Eccles, 2023), which posits that learners are more likely to engage with tasks they perceive as useful, valuable, or personally relevant. The role of utility value in second-language motivation research is likewise corroborated by recent data, which show that perceived utility value is among the most robust predictors of persistence, engagement, and achievement (Hiver et al., 2024; Papi & Hiver, 2020; Teimouri et al., 2021), especially in English as a Foreign Language (EFL) contexts, where access to global knowledge (along with associated technology and transnational networks) is mediated through a common language, English. This motivation perhaps makes sense in Thailand, where, for example, English plays a key role in tourism and ASEAN cooperation, international business, and the competitiveness of graduates in the labour market.

Extrinsic motivation was also high, suggesting that the desire for good grades, the pursuit of a degree, parents' expectations, and social recognition remained key drivers. This underscores the weight of performance-oriented educational cultures, in which academic success is closely linked to gatekeeping examinations and credentialing pathways to upward mobility. By contrast, intrinsic motivation was low, indicating that many learners took English as a means to future goals rather than as an activity of interest in itself or as an exercise of the mind. Similar motivational profiles have been reported in East and Southeast Asian contexts, where students often endorse very strong utility beliefs alongside relatively weak intrinsic enjoyment (Lee & Lu, 2023).

This imbalance between purposeful activities and those done for enjoyment has psychological consequences. Although extrinsic and utilitarian motives can provide a strong initial nudge to engage in effortful learning, intrinsic motivation generally predicts deeper processing of the material, creativity, perseverance in the face of challenges, and overall persistence (Howard et al., 2021; Ryan & Deci, 2020). Engagement diminishes when immediate rewards dry up or when barriers to progress arise, particularly when learning is pursued solely for external outcomes. Therefore, the current results suggest that Thai learners are motivated but not always optimally motivated.

Another notable finding concerned self-efficacy, which was relatively high, indicating that many students believed they could learn English through “hard work and determination”. This is encouraging, as self-efficacy has repeatedly been shown to be among the most powerful motivational predictors of strategy use, achievement, and academic resilience (Bai & Wang, 2023; Bandura, 1997; Usher & Morris, 2023). Those who believe they can improve are more likely to attempt difficult tasks, persist in the face of difficulty, and bounce back from failure. Thus, in the current study, self-efficacy might serve as an important psychological mediator between two variables: valuing English and engaging in strategic acts to learn it.

Another way to view them is that they may have their sights set on the future but are not sufficiently emotionally engaged. They understand why the English language is important, yet they may have less rewarding emotional experiences when learning it. This distinction is pedagogically important. Another view is that if classrooms focus on grammatical accuracy, tests, and credentials at the expense of genuine communication, creativity, or learner autonomy, students will still try hard, but with minimal enjoyment or ownership.

Based on these results, English instruction at Thai universities needs to shift from the current approach of repeatedly drawing students’ attention to the utility of English, which they already recognise, to a more targeted focus on promoting intrinsic motivation and adaptive self-beliefs. Autonomy-supportive teaching, authentic communicative tasks, project-based learning, digital intercultural exchanges with peers abroad, gamified formative feedback and collaborative problem-solving, and mastery-oriented assessment practices are examples of evidence-based approaches (Mercer & Gregersen, 2020; Teng, 2022). Such practices can shift the perception of English from an obligatory requirement to a personally relevant skill, thereby enhancing engagement and emotional ownership, which support progression over time.

5.2. Language Learning Strategies Used by Thai University EFL Learners

The results showed that Thai university EFL learners, in general, used their language learning strategies (LLS) at a moderate level, with cognitive and metacognitive strategies used slightly more often than social strategies. This pattern suggests that learners predominantly used internally regulated forms of learning rather than socially mediated strategy use. Theoretically, this profile points to a learning orientation characterised by self-management, individual accountability, and task completion, rather than collaborative knowledge construction (Teng & Zhang, 2020; Zimmerman, 2000). This is consistent with research indicating that university students in high-stakes assessment systems tend to prefer strategies that can be used unilaterally and effortlessly (Rose et al., 2018).

The relatively greater use of cognitive strategies may suggest that students were engaged in processing linguistic input, for example, by identifying main ideas, reviewing content, taking notes and using digital learning tools. In technology-enhanced environments in modern-day higher education, learners are provided with unprecedented opportunities to access dictionaries, translation tools, corpora, online videos, and self-practice platforms, independently of teaching. While recent studies on the strategic use of digitally mediated strategies highlight their potential for vocabulary development, comprehension and learner autonomy (Lai & Zheng, 2018; Teng, 2022), the availability of metacognitive tactics also implies the development of self-regulatory proficiency, for example, by putting together learning plans, following updates and readjusting techniques that are not successful. This finding is in accord with SRL theory, which holds that successful learners regulate cognition, motivation and behaviour proactively across learning phases (Pintrich, 2004; Zimmerman, 2000).

However, social strategies are used less frequently. This may reflect communication apprehension, fear of negative evaluation by peers, lack of confidence in public speaking in English, or limited opportunities for interaction outside the classroom. Individual study, at times over collaborative communication, has a long tradition in many Asian EFL contexts, including Thailand, where the historical focus of language learning emphasised examination results, grammatical correctness, and top-down, teacher-fronted instruction. Compared with interactive-based strategies, Thai learners show similar tendencies, preferring more receptive and independent strategies (Kitichaidateanan & Sukying, 2025; Sukying, 2021). Similar results have been found in East Asian contexts, where face-saving norms work against spontaneous oral participation (Peng, 2014). In contrast, in studies conducted in communicative or immersion settings, peer interaction and negotiation of meaning played a much stronger role (Griffiths, 2013; Sato & Ballinger, 2016).

A distinctive implication of these results is that learners in Thai tertiary education may be classified as strategically savvy but socially unengaged, digitally engaged practitioners. They seem better prepared to learn independently, yet less inclined to utilise the social aspects of language development. As communicative competence grows through interaction, feedback and co-constructed meaning, integrating autonomous learning with well-structured collective work is essential: peer collaboration, task-based discussion, on-line speaking exchanges, group assignments, input-rich research and feedback rounds in which students give each other feedback or observe fellow students can spread best practice at the course level. Merging digital self-determination with social engagement can help convert efficient individual learners into more socially adept and communicatively competent users of English, better prepared for global academic and professional settings (Dörnyei & Ushioda, 2021; Mercer & Gregersen, 2020).

5.3. Relationship Between Motivational Beliefs and Language Learning Strategies

The SEM results showed that motivational beliefs indirectly predicted the use of language learning strategies (LLSs). Specifically, intrinsic motivation, task value, and self-efficacy had moderate-to-strong positive effects on strategy use, whereas extrinsic motivation had a weaker but still significant influence. These findings indicate that learners who enjoy learning English, perceive it as meaningful, and believe in their ability to succeed are more likely to engage in strategic behaviours such as planning study routines, monitoring comprehension, managing time, seeking learning resources, and regulating effort. This pattern suggests that strategy use is not merely a technical skill set but a psychologically energised form of purposeful action (Teng, 2022).

The findings strongly support social cognitive theory, which holds that efficacy beliefs shape persistence, behavioural choices, and strategic performance through self-referent judgements of capability (Bandura, 1997). Learners with stronger self-efficacy are generally more willing to attempt difficult tasks, sustain effort in the face of challenge, and revise ineffective approaches when difficulties arise. In language learning contexts, such confidence is particularly important because progress often requires repeated risk-taking, delayed rewards, and tolerance of ambiguity (Mercer & Gregersen, 2020). The findings also align with self-regulated learning theory, in which motivation is a central driver of planning, monitoring, reflection, and behavioural control (Schunk & Greene, 2018; Zimmerman, 2000). From this perspective, strategies are not isolated techniques; they are motivated, goal-directed responses to learning demands.

The strong effect of task value is particularly noteworthy. Learners who viewed English as useful for career development, academic advancement, and international communication were more likely to employ effective strategies. This aligns with expectancy-value theory, which holds that perceived usefulness, importance, and utility increase effort, persistence,

and adaptive task engagement (Eccles & Wigfield, 2020; Wigfield & Eccles, 2023). In the Thai university context, where English proficiency is closely linked to graduate employability, tourism, ASEAN mobility, and access to international knowledge, valuing English may serve as a powerful catalyst for sustained strategic behaviour. Similar patterns have been reported in Asian EFL settings, where utility value predicts both learning effort and autonomous engagement (Teimouri et al., 2021).

Intrinsic motivation also significantly predicted LLS use, indicating that enjoyment, curiosity, and personal interest foster deeper engagement in learning. Learners who enjoy English may be more willing to experiment with strategies, practise voluntarily, explore authentic media, and persist beyond the minimum course requirements. This finding aligns with recent research on second-language motivation, which shows that autonomous motivation is associated with higher-quality engagement, resilience, creativity, and self-initiated learning behaviours (Hiver et al., 2024; Noels et al., 2019; Ryan & Deci, 2020). In practical terms, students who enjoy learning English are more likely to use strategies because they want to learn, not merely because they have to.

By contrast, the comparatively weaker role of extrinsic motivation suggests that external pressures such as grades, compulsory coursework, family expectations, or social comparison may stimulate participation but do not consistently foster sophisticated strategic engagement. Students may study to avoid failure or obtain credentials, yet remain less likely to engage in reflective planning, adaptive self-monitoring, or voluntary practice. This distinction between the quantity and quality of motivation is important. Controlled forms of motivation may initiate behaviour, but autonomous motives are more strongly associated with sustained strategic learning and psychological well-being (Howard et al., 2021; Ryan & Deci, 2020). Similar findings have been reported in recent research on higher education, where performance pressure predicted surface engagement more strongly than deep strategic learning.

Methodologically, these findings strengthen the proposed structural model's validity by demonstrating differentiated effects across multiple motivational dimensions, rather than treating motivation as a unitary construct. This multidimensional approach provides a more precise account of how distinct beliefs relate to strategic behaviour. It also extends previous studies by simultaneously modelling these pathways in a large sample of Thai university EFL learners using SEM, thereby accounting for latent measurement error and testing direct effects within a unified framework (Kline, 2016). The results are broadly consistent with recent SEM studies showing that motivational variables predict self-regulated and strategic learning behaviours across Asian EFL contexts (Bai & Wang, 2023; Chen et al., 2026).

An innovative implication of the present findings is that language-learning strategies may be best understood as behavioural expressions of motivational quality. Students use strategies not merely because they know them, but because they are energised by value, confidence, and interest. In other words, strategic competence is partly motivational competence. Accordingly, strategy instruction should be integrated with motivational interventions that strengthen self-efficacy, highlight authentic value, and cultivate intrinsic engagement. Classroom practices such as mastery-oriented feedback, meaningful communicative tasks, progress tracking, peer modelling, and autonomy-supportive teaching are likely to foster more sustainable and transferable language-learning behaviours (Mercer & Gregersen, 2020; Teng & Zhang, 2020). Overall, the present findings suggest that improving learners' strategies requires more than teaching techniques; it requires cultivating the psychological conditions under which strategies are used willingly and effectively.

5.4. Direct Effects of Motivational Beliefs on English Learning Achievement

In response to Research Question 3, one of the most salient findings of this study is that language learning strategies (LLSs) had the strongest direct effect on English language achievement (ELA) ($\beta = 0.51$), exceeding all motivational predictors. This suggests that, in practical terms, learners' actions may influence achievement more directly than their beliefs or feelings. Students who actively organise study time, monitor comprehension, seek feedback, practise communication, and adjust ineffective approaches are more likely to achieve stronger English outcomes. This finding aligns with recent Thai and Asian EFL research, which shows that self-regulated strategy use is positively associated with English ability and academic achievement (Chansri et al., 2024).

Theoretically, this result clarifies how individual differences translate into performance. Motivation may energise learners, but strategic behaviour operationalises it into measurable progress. This aligns with Self-Regulated Learning Theory, which conceptualises achievement as the coordinated regulation of cognition, motivation, and behaviour (Pintrich, 2004; Zimmerman, 2000). Recent systematic and meta-analytic work similarly indicates that SRL strategies are important predictors of academic performance, particularly in online, blended, and language-learning contexts (Zhao et al., 2025).

The magnitude of the strategy effect is particularly significant in EFL contexts, where natural exposure to English is often limited. Unlike first-language development, EFL learning depends heavily on deliberate practice beyond the classroom, including vocabulary review, use of digital resources, media exposure, interaction practice, and reflective self-correction. Thus, strategies may serve as a compensatory mechanism that extends learning opportunities beyond formal instruction. Recent studies on AI-mediated and technology-supported language learning also show that achievement improves when learners combine digital tools with self-regulated learning behaviours.

Among motivational predictors, self-efficacy had the strongest direct effect on ELA, followed by task value and intrinsic motivation. This aligns with social cognitive theory, which holds that learners' beliefs about their capabilities shape persistence, resilience, and the quality of their performance (Bandura, 1997). Recent evidence further confirms that self-efficacy predicts academic engagement and achievement, including in online and language-learning contexts (Fatimah et al., 2024). Task value also significantly predicted achievement, suggesting that learners who view English as useful and meaningful are more likely to sustain effort. This is consistent with expectancy-value theory, which emphasises the motivational force of perceived usefulness, importance, and future relevance (Eccles & Wigfield, 2020).

Intrinsic motivation also contributed positively, though less strongly than self-efficacy and task value. This suggests that enjoyment, curiosity, and interest support achievement, particularly when they prompt voluntary practice, deeper engagement, and continued exposure to English. Contemporary motivation research increasingly emphasises that positive emotions and autonomous motivation support sustained language learning trajectories (Dewaele & Li, 2021; Hiver et al., 2024; Ryan & Deci, 2020).

By contrast, extrinsic motivation did not significantly predict achievement. This finding suggests that studying primarily for grades, compliance, or external rewards may initiate participation but may be insufficient for sustained language development. In other words, when extrinsic incentives are adopted primarily by learners, they may not be development from a self-determination (Ryan & Deci, 2020). Yet this does not mean that extrinsic motivation is irrelevant in EFL learning. External motives relating to examination success or grade, graduation requirements, or even employment expectations might correlate with stronger effort and short-term test performance. As such, the influence of extrinsic motivation may be contingent on factors about context such as type of

assessment context, institutional objective, and nature of achievement tests. In this study, English learning achievement was measured through overall perceived achievement and self-rated proficiency instead of standardised test results. One possible explanation for this result is perhaps that task value and self-efficacy showed stronger links to students' achievement than extrinsic motivation. From this perspective, the finding should be seen as context-dependent.

An innovative contribution of this study is demonstrating that LLSs serve as the behavioural bridge between psychological readiness and English achievement. Motivation matters, but the use of strategy appears to be the most immediate driver of performance. Therefore, language education should not separate "motivation" from "skills." Effective programmes should cultivate self-efficacy, meaningful goals, intrinsic engagement, and explicit strategic competence through planning, monitoring, feedback, reflection, and autonomous practice.

5.5. Mediating Role of Language Learning Strategies

In response to Research Question 4, the SEM showed that LLSs significantly and partially mediated the effects of intrinsic motivation, task value, and self-efficacy on achievement. This finding suggests that motivational beliefs were significantly correlated with students' language learning strategies and English learning achievement within the proposed SEM model. In other words, students who reported greater motivational beliefs also tended to report more frequent use of language learning strategies and higher levels of English learning achievement. These findings indicate theoretically meaningful predictive relationships that are consistent with self-regulated learning perspectives. Experimental studies are needed to determine whether strengthening motivational beliefs contributes to subsequent changes in strategy use and English achievement over time.

These results suggest that positive beliefs are of little use unless put into practice. Those who value English are more likely to plan, review, monitor progress and create opportunities for practice. Similarly, those with higher self-efficacy were more likely to persevere after failure, manage frustration and adapt unsuccessful methods until the goal was reached. Success, then, seems to stem from the combination of motivational drive and tactical manoeuvring. This finding aligns with previous research showing that motivational factors predict academic achievement most strongly when paired with specific self-regulated behaviours and measures of active learning (Bai & Wang, 2023; Panadero et al., 2021).

The results provide a compelling theoretical basis for self-regulated learning theory, in which learners are conceptualised as achieving success through the interplay of motivation, cognition, metacognition and behaviour (Schunk & Greene, 2018; Zimmerman, 2000). Motivation initiates and sustains action, while strategies direct effort towards goals. The finding is also consistent with social cognitive theory, in which self-efficacy influences persistence and the use of coping and self-management strategies (Bandura, 1997). Students with a growth mindset are more likely to use, refine and persist with strategies when they encounter difficulties. In line with L2 motivation research, motivation is often conceptualised as a dynamic, context-sensitive phenomenon mediated by engagement processes (Hiver et al., 2024; Mercer & Gregersen, 2020; Papi & Hiver, 2020), rather than as a stable trait or as exhibiting only direct effects.

The most substantive mediated pathways were through task value and self-efficacy. These point to two particularly influential beliefs in the context of higher education language learning: first, that English is useful and meaningful; and second, that it is possible to learn it successfully. Students who recognise task value can put in the effort, delay gratification, and persist. Individuals with high self-efficacy might view challenges as manageable rather than threatening, and thus continue to apply strategies under pressure.

These beliefs seem to promote strategic persistence, which is vital in EFL environments where improvement often requires sustained effort beyond classroom exposure (e.g., Effort and Attitude).

These findings further extend expectancy-value theory by indicating that perceived value exerts an effect on achievement through different pathways: effort or persistence, strategy selection, and self-regulation. In this way, valuing English can be presented in practice as motivation for students to: plan study time (make an appointment), visit e-learning sites, practise verbal communication and study reading comprehension. Finally, efficacy beliefs can foster experimentation with more challenging strategies and persistence after failure (Eccles & Wigfield, 2020; Wigfield & Eccles, 2023).

Extrinsic motivation, in contrast, accounted for only a small share of the mediation. This supports self-determination theory, which holds that controlled motives, such as studying for grades, social approval, or compliance, may produce a fleeting participatory effect but are unlikely to sustain deep, high-quality engagement over the longer term (Ryan & Deci, 2020). If students are primarily externally motivated, they may complete assigned tasks but be less inclined to use reflective or self-regulated strategies that underpin lasting proficiency. This aligns with the distinction between controlled and autonomous motives reported in recent language motivation research (Teimouri et al., 2021) conducted in Asian university contexts.

The results also highlight the usefulness of SEM for testing complex educational processes in which direct and indirect pathways operate simultaneously. Simpler regression methods may indicate that motivation precedes achievement, but they do not usually identify the mechanisms underlying this effect. This study provides a more nuanced understanding of how English achievement is constructed by estimating mediated pathways that account for latent measurement error. This is particularly true in intelligence and learning research, where success outcomes arise from a multitude of interactions between cognitive and motivational systems rather than from isolated variables.

6. Conclusions

The results allow for some unequivocal conclusions. First, Thai university learners reported a moderate overall level of LLS use. Reflecting the prominence of cognitive and metacognitive strategies, students used these strategies significantly more often than social strategies, suggesting they relied predominantly on individual learning management, associated with planning, monitoring, and independent practice, rather than on interaction-based learning. Second, learners demonstrated moderate-to-high motivational beliefs. Task value had the largest effect size across motivational dimensions, followed by extrinsic motivation, self-efficacy, and intrinsic motivation. This suggests that students perceived English primarily as useful for jobs, further study, and international communication. Third, the measurement and structural analyses confirmed the validity of the proposed model. The study found support for reliability, exploratory factor analysis, confirmatory factor analysis, and SEM results, indicating the appropriateness of the measurement of constructs and a good model fit.

For the hypotheses, H1 was confirmed: motivational beliefs significantly predicted LLS use, particularly intrinsic motivation, task value, and self-efficacy. The primary support for H2 was that motivational beliefs predicted achievement, whereas extrinsic motivation had no direct effect. H3: LLSs were the strongest direct predictor of English achievement. H4 was partially supported: the indirect effects of intrinsic motivation, task value, and self-efficacy on achievement were mediated by LLSs, but not those of extrinsic motivation.

The study also argues that learners' actions and beliefs about English matter for English achievement. Motivation seems most valuable when it translates into successful strategic

behaviour. EFL learners with greater regard for English, higher self-efficacy, and who use productive strategies perform better. Taken together, this study advances the research by synthesising motivational and strategic elements into a single structural model within the Thai university EFL context. Moreover, it suggests that higher education instruction should simultaneously target motivation, learner confidence and strategic competence, as they are important for independent and efficient English learning.

7. Implications

These findings have theoretical, pedagogical and practical implications for English language education at the higher education level, both in general and in Thailand and similar EFL contexts. The current results indicate that LLSs and MBs work together to drive ELA, suggesting that effective learning depends on both learners' motivation for language learning and productive language strategies.

The study's findings support a theoretical perspective, namely self-regulated learning theory, social cognitive theory, and expectancy-value theory, showing that academic achievement is shaped by interacting beliefs, behaviours, and learning processes. In particular, the mediation of LLSs implies that motivation, as one of its determinants, facilitates achievement through strategy. Finally, in pedagogical terms, because LLSs were the strongest predictor of achievement, universities should explicitly instruct students in English courses. Goal generation includes planning, time management, monitoring comprehension and vocabulary learning, reflective practice, and independent digital literacy. Social strategies such as pair work, group discussions, peer feedback, and communicative tasks need greater emphasis, even though they are used less frequently.

Other findings relate to strengthening task value and self-efficacy. This can be achieved by connecting their English learning to their career aspirations, academic goals, and global opportunities; providing constructive feedback; and assigning tasks they can easily accomplish to help them gain confidence. While extrinsic motivation might prompt students to participate, it does not seem to be much use for long-term success. Thus, instruction that also inspires fun and game-like curiosity for the learner is an autonomous process. Together, universities must adopt a unified approach to enhance sustainable English learning outcomes that integrates both motivation and strategic competence.

8. Limitations and Recommendations for Future Studies

Limitations of this study need to be addressed. First, language learning strategies, motivational beliefs and English achievement were measured using self-report questionnaires. Self-report data, however, are subject to wide variation due to social desirability, recall bias, or differences in self-perception, which may undermine response accuracy, although they are efficient for larger samples. Second, the cross-sectional design limited our ability to make causal inferences about relationships identified among variables at a single point in time. The SEM results align with theoretically driven pathways but cannot confirm developmental direction. Third, data were collected from a single public university in Thailand, which may limit the transferability of the findings to other institutions or regions (with different learner profiles, curricula, or sociocultural contexts).

In light of these restrictions, the following recommendations are offered. Longitudinal and experimental studies are needed to investigate the development of language-learning strategies and motivational beliefs over time and to test causality through targeted instructional interventions. Second, future research could utilise mixed-methods designs that combine surveys with interviews, classroom observations, think-aloud protocols, and learner journals to elaborate on learners' experiences and the contextual factors that may influence them. Regarding evidence, researchers are encouraged to incorporate objective

measures of English achievement (e.g., standardised proficiency tests or course performance data) alongside self-report indicators. Lastly, more studies across proficiency levels, disciplines, and institutional settings (e.g., public or private universities, urban or rural universities) would enhance external validity and pinpoint context-specific factors that may guide further differentiated teaching practices.

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