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Growth Language Mindset and Language Classroom Engagement Among Iranian EFL learners: The Mediating Roles of Foreign Language Self-Efficacy and Foreign Language Enjoyment

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Abstract

This study explores how foreign language self-efficacy (FLS) and foreign language enjoyment (FLE) act as mediators in the relationship between growth language mindset (GLM) and language classroom engagement (LCE) among Iranian students learning English as a foreign language (EFL). Utilizing a quantitative methodology, we obtained data from 422 EFL learners through standardized instruments to measure GLM, FLS, FLE, and LCE, and examined them though the analysis of structural equation modeling (SEM). The results depict that GLM significantly affects both FLE and LCE, with FLE serving as a primary mediator in this relationship; however, the direct effect of FLS on LCE was found to be non-significant. These outcomes enrich our comprehension of the intricacies involved in language learning dynamics and have important implications for educators and learners in enhancing engagement in foreign language classrooms. This research illuminates the inevitability of promoting GLM and enjoyment in the quest to acquire a new language to optimize educational outcomes for EFL students.

Keywords: foreign language self-efficacy (FLS), foreign language enjoyment (FLE), growth language mindset (GLM), language classroom engagement (LCE)

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1. Introduction

In today's interconnected world, the capacity to communicate effectively across diverse cultures is of paramount importance. As globalization intensifies, so does the necessity for proficient foreign language education, which often faces challenges related to learner engagement in language classrooms as revealed by the other examinations performed by Derakhshan et al. (2022) and Hiver et al. (2024). The present route seeks to tackle these challenges by evaluating the psychological constructs that influence language learning engagement. By focusing on GLM, FLS, FLE, and LCE, the current inquiry is designed to illuminate the intricate dynamics that contribute to successful language acquisition.

Recent scholarship on GLM has revealed intricate connections between cognitive engagement and language learning performance, highlighting how growth mindsets enhance self-regulatory capacities and risk-taking behaviors in second language contexts (Derakhshan & Fathi, 2024a; Hassanzadeh et al., 2023). Furthermore, Almutlaq (2024) confirmed that factors like foreign language enjoyment can buffer against negative effects of task difficulty on cognitive engagement, while mindset may not play a moderating role. Despite extensive research about the mentioned variables in different combinations studied by Almutlaq (2024), Fathi et al. (2024b), Hassanzadeh et al. (2023), and Li (2023), significant gaps remain in understanding the precise mediating roles of FLSE and FLE in a newly developed serial mediation model, suggesting promising directions for future investigative efforts.

Additionally, while the seriousness of self-efficacy in improving educational attainment is well-documented (Huang et al., 2024), the interplay between FLSE, FLE, and GLM in fostering LCE remains underexplored. Research has shown that both FLE and online learning self-efficacy significantly influence student engagement (Derakhshan & Fathi, 2024b), yet the mediating effects of these factors in the GLM-LCE relationship have not been adequately addressed. Consequently, there is a pressing need for empirical studies to investigate how FLSE and FLE mediate the impact of GLM on LCE within diverse educational settings.

This research delves into a novel serial mediation approach rooted in positive psychological principles, specifically utilizing the comprehensive PERMA model that articulates well-being through five interconnected dimensions of human experience (Seligman, 2018). At its core, the study examines GLM as a dynamic construct that conceptualizes language proficiency as a malleable skill capable of enhancement through dedicated effort and strategic perseverance. This mindset fosters a positive emotional state conducive to learning, aligning with the Positive Emotion aspect of PERMA. In this regard, FLS reflects learners' confidence in their language abilities, directly influencing their engagement levels, an essential component

of the framework. FLE captures the satisfaction derived from learning a language, further enhancing engagement and motivation. Finally, LCE represents active participation in classroom activities, which is vital for achieving meaningful educational outcomes. By integrating these constructs into a serial mediation model, this investigation addresses a recognized gap in existing literature regarding the interplay between GLM, FLS, FLE, and LCE in an Iranian EFL context.

This research addresses existing scholarly gaps by exploring the intricate mechanisms through which GLM impacts LCE, strategically examining the mediating influences of FLS and FLE. By systematically investigating the interplay between learners' cognitive beliefs and emotional experiences, the project intends to deliver a thorough framework that elucidates the complex psychological dynamics underlying language learning engagement and performance.

The study will begin with a literature review that contextualizes GLM, FLS, FLE, and LCE in the overarching paradigm of positive psychology and educational psychology. Following this review, a methodology section will outline the research design, participant demographics, specifically focusing on the Iranian EFL learners. The results section will present findings derived from SEM to test the proposed serial mediation model. The discussion will synthesize findings within current scholarly literature, offering nuanced interpretations and providing practical recommendations for educators to generate more engaging and supportive language learning settings.

In the same vein, educators can employ strategies designed to cultivate a GLM, enhance FLE, bolster FLS, and promote LCE. A GLM may be encouraged by instructing students on the principles of brain plasticity and reframing errors as valuable opportunities for learning. FLE can be fostered through the incorporation of games, musical elements, and collaborative projects. FLS may be enhanced by offering tasks that are attainable yet challenging, coupled with constructive feedback. To increase LCE, interactive and project-based learning approaches can be implemented. Teacher training programs should prioritize these concepts to create stimulating and effective language learning environments.

By exploring the intricate psychological dynamics among Iranian EFL learners, this research seeks to uncover the nuanced challenges and experiences within foreign language education. Examining the complex interactions between GLM, FLS, FLE, and LCE offers potential insights into developing targeted strategies for enhancing student motivation and learning performance. The study ultimately aims to advance pedagogical approaches that integrate positive psychological principles, potentially generating transformative implications for language education practices worldwide.

2. Literature Review

Contemporary EFL scholarship has increasingly examined the intricate psychological and contextual dimensions shaping language learning dynamics. Emerging research has illuminated the critical contributions of psychological constructs like Foreign Language Enjoyment, second language perseverance, growth-oriented mindsets, and academic self-belief in modulating student engagement and linguistic performance (Derakhshan & Fathi, 2024a; Fathi et al., 2024a; Fathi et al., 2024b; Khajavy et al., 2021). These investigations collectively emphasize the paramount importance of cultivating nurturing educational environments and promoting adaptive learner psychological attributes to optimize language acquisition processes among EFL students (Dewaele et al., 2018; Hejazi & Sadoughi, 2023; Yeşilçınar & Erdemir, 2023).

2.1. Growth Language Mindset (GLM)

Psychological perspectives reveal two fundamental mindset paradigms: fixed and adaptive. Individuals characterized by a fixed mindset perceive abilities as static and predetermined, typically avoiding challenges. Conversely, those embracing an adaptive mindset view capabilities as malleable, believing intelligence can be cultivated through committed endeavor and strategic learning (Dweck, 2015; Dweck, 2017).

While the growth mindset has attracted considerable research attention in L2 acquisition, numerous empirical investigations have primarily examined its relationship with different student constructs, often neglecting factors relevant to this study (Bai & Wang, 2023; Derakhshan et al., 2024; Hu et al., 2022; Khajavy et al., 2021). Recent investigations have increasingly examined the growth mindset among EFL learners in Iran, particularly its influence on cognitive engagement and risk-taking behaviors. Findings indicate that GLM significantly predicts cognitive engagement through mediating factors such as risk-taking (Hassanzadeh et al., 2023). Along with, nurturing GLM has been associated with enhanced language learning outcomes by promoting perseverance and adaptability among learners (Khajavy et al., 2021). Given this context, it is anticipated that further empirical research across diverse EFL contexts will explore the impact of GLM on language learning performance, especially LCE.

2.2. Foreign Language Self-Efficacy (FLS)

FLS represents an individual's psychological conviction regarding their competence in executing foreign language tasks and skills. Rooted in social cognitive perspectives, this concept encapsulates learners' internal confidence across linguistic domains including comprehension, production, and interaction (Bandura, 2001; Putwain et al., 2022).

Contemporary research has illuminated multifaceted dimensions of language learning self-efficacy. For instance, Azizi et al. (2022) indicated that significant differences in pedagogical knowledge and motivational needs satisfaction across groups with varying teaching experience, suggesting that self-efficacy peaks among moderately experienced EFL teachers. Scholars like Derakhshan and Fathi (2024a) have substantiated the convoluted relationships between psychological constructs such as growth mindset, self-regulation, and language performance. Their investigations demonstrate that psychological attributes significantly mediate learners' linguistic capabilities, with self-efficacy emerging as a critical psychological mechanism (Derakhshan & Fathi, 2024b; Fathi et al., 2024b).

Emerging scholarship further emphasizes the profound implications of self-efficacy in pedagogical spheres. Huang et al. (2024) highlighted that learners exhibiting heightened self-efficacy exhibit preemptive learning behaviors, characterized by ambitious goal-setting, persistent engagement, and enhanced academic resilience. These psychological dispositions contribute to creating positive learning environments and promoting holistic educational experiences.

Recent empirical studies have consistently underscored the transformative potential of psychological factors in language acquisition. As an example, Zhang et al. (2022) revealed that interconnected mental concepts like growth mindset and mindfulness substantially influence self-efficacy in the experience of mastering another language. About this, further survey conducted by Wang et al. (2024) similarly demonstrated a similar trend in which increased self-efficacy significantly augments student engagement, suggesting that psychological confidence serves as a fundamental catalyst for successful language learning trajectories.

These comprehensive findings underscore the necessity for continued research exploring the nuanced interactions between psychological constructs and language learning outcomes across diverse educational landscapes.

2.3. Foreign Language Enjoyment (FLE)

As a favorable affective condition, FLE is perceived by learners during the journey of mastering a foreign language, characterized by feelings of satisfaction and engagement that arise when overcoming challenges. Studies have shown that FLE is significantly correlated with improved language performance, suggesting that positive emotions can counterbalance negative feelings such as anxiety and contribute to overall learner success in the route of learning a foreign language (Botes et al., 2021; Dewaele et al., 2018; Huang et al, 2022; Yeşilçınar & Erdemir, 2023).

Contemporary linguistic research has progressively illuminated the intricate mediating mechanisms of FLE in understanding language learning

dynamics. Emerging scholarly investigations reveal complex interactions between psychological constructs and linguistic achievement, demonstrating FLE's nuanced role in educational environments (Fathi & Hejazi, 2024; Yang et al., 2024).

Empirical studies have substantiated multifaceted connections between emotional experiences and linguistic performance. Researchers have discovered that positive psychological attributes significantly influence learners' enjoyment, with individual characteristics and contextual factors emerging as critical determinants of linguistic engagement (Li, 2023; Yeşilçınar & Erdemir, 2023).

Comprehensive investigations have explored the sophisticated connection between emotional experiences and language learning outcomes. Scholars have observed that psychological constructs like growth mindset and ideal L2 self directly correlate with increased language learning enjoyment, subsequently enhancing learners' communicative competence and performance (Dewaele et al., 2023; Fathi et al., 2023).

Emerging scholarship emphasizes the transformative potential of positive emotional experiences in language acquisition. Investigations have persistently indicated that FLE mediates relationships between psychological attributes, willingness to communicate, and intercultural competence, highlighting the profound impact of emotional engagement on linguistic development (Hu et al., 2022; Lee et al., 2022).

Recent research by Zhang et al. (2020) and Wei et al. (2019) has further illuminated the critical role of contextual factors in fostering language learning enjoyment. Studies have revealed that teacher behaviors, digital learning experiences, and individual psychological traits significantly contribute to students' linguistic engagement and performance.

These comprehensive findings underscore the complex psychological mechanisms underlying successful language learning, stressing the critical function of emotional experiences in constructing effective and collaborative educational contexts.

2.4. Language Classroom Engagement (LCE)

Recent work by Eerdemutu et al. (2024) characterizes LCE as a complex component incorporating cognitive, behavioral, and emotional dimensions, all of which are vital for achieving effective learning outcomes in second language acquisition (SLA). Behavioral engagement refers to observable actions, such as persistence in learning tasks, while emotional engagement relates to students' affective feedbacks, including their enthusiasm and enjoyment in the educational procedure. Cognitive engagement involves the use of sophisticated learning techniques and deep thinking about the material being studied. In this regard, empirical research illuminates the

complex interplay between psychological constructs and educational trajectories, revealing nuanced mechanisms of learner involvement (Sadoughi & Hejazi, 2023; Mohammad Hosseini et al., 2022).

Academic investigations have substantiated the key player of environmental and psychological factors in stimulating student engagement. Researchers have uncovered that classroom atmospheres, emotional experiences, and individual psychological dispositions profoundly shape motivational patterns and interactive behaviors (Derakhshan et al., 2022; Hiver et al., 2024). With regards to this, Javidkar et al. (2022) identified that autonomy-supportive teaching significantly predicts EFL learners' willingness to communicate, self-regulation, academic engagement, and perceived locus of control. Additionally, self-regulation and academic engagement indirectly influence willingness to communicate through the perceived locus of control.

Emerging scholarship emphasizes the potential of supportive pedagogical ecosystems in amplifying student involvement. Investigations consistently demonstrate that nurturing, mastery-oriented educational settings significantly enhance learners' intrinsic motivation and active participation in linguistic development processes (Guilloteaux, 2016; Zhang, 2021).

Recent scholarly perspectives highlight the multifaceted nature of student engagement as a psychological construct. While existing literature underscores its fundamental significance in second language acquisition, academics recognize the imperative for more sophisticated methodological approaches and comprehensive theoretical frameworks (Mercer, 2023; Wang et al., 2023).

These comprehensive discoveries emphasize the critical necessity for continued exploration of the intricate interactions between psychological, social, and pedagogical dimensions in language learning engagement, emphasizing the ongoing quest for deeper understanding of student participation mechanisms.

Building upon established findings, our choice of a serial mediation model is grounded in previous research within educational contexts, as indicated in our literature review. Prior studies have demonstrated the interconnectedness of GLM with cognitive engagement and risk-taking (Hassanzadeh et al., 2023), highlighting the potential for GLM to influence both FLS and FLE (Derakhshan & Fathi, 2024a; Khajavy et al., 2021). Furthermore, research underscores the meaningful influence of self-efficacy and FLE on engagement among students (Derakhshan & Fathi, 2024b; Wang et al., 2024), suggesting a sequential pathway from mindset to emotions/beliefs and ultimately to classroom behavior. Therefore, a serial mediation model is well-suited to discover these complex, cascading relationships, aligning with the documented interplay of these constructs on the path to acquire a new language.

In summary, the literature indicates a growing recognition of the interplay between psychological constructs such as GLM, FLS, FLE, and LCE in enhancing EFL educational outcomes. Although earlier research has extensively examined these constructs in isolation, there remains a notable gap regarding their interrelationships, particularly concerning how they collectively influence language acquisition processes. This review highlights the necessity for further empirical investigations that explore these dynamics in diverse educational contexts. Specifically, it is crucial to evaluate the mediation roles played by FLS and FLE within the dynamic bond on the path from GLM to LCE among Iranian EFL learners through a new chain mediation design. The proposed model, along with its associated pathways, is depicted in Figure 1. Pertaining to the proposed model, the articulated hypotheses have been formulated as follows:

Direct Effects:

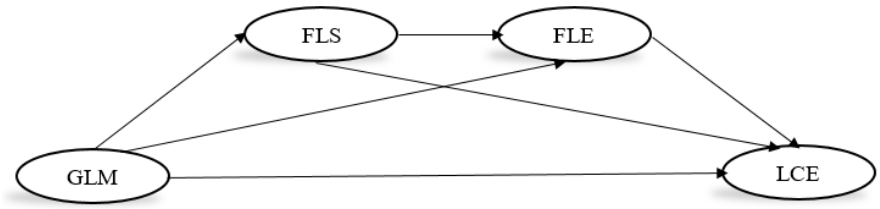
Hypothesis 1: GLM influences FLS positively.
Hypothesis 2: GLM influences FLE positively.
Hypothesis 3: GLM influences LCE positively.
Hypothesis 4: FLS influences FLE positively.
Hypothesis 5: FLS influences LCE positively.
Hypothesis 6: FLE influences LCE positively.

Mediated Effects:

Hypothesis 7: FLS mediates the effect of GLM on FLE.
Hypothesis 8: FLS mediates the effect of GLM on LCE.
Hypothesis 9: FLE mediates the effect of FLS on LCE.
Hypothesis 10: FLE mediates the effect of GLM on LCE.
Hypothesis 11: FLS and FLE mediate the effect of GLM on LCE.

Figure 1

The Proposed Structural Model



Note: GLM: Growth Language Mindset (IV; MAC: Foreign Language Self-Efficacy (M1); FLE: Foreign Language Enjoyment (M2); LCE: Language Classroom Engagement (DV)

3. Method

3.1. Participants

In total, 500 EFL learners from various high schools in Iran were involved in this study. The respondents were Iranian students enrolled in grades 7 through 12, with ages ranging from approximately 13 to 18 years. After screening for inattentive responses, the final sample included all 422 participants. Among them, 221 (52.4%) were female and 201 (47.6%) were male. The distribution across grades revealed that Grade 9 had the highest number of participants, with 120 students (28.4%), followed by Grade 7 with 80 students (18.9%) and Grade 8 with 60 students (14.2%). Grade 10 had 50 students (11.8%), Grade 11 included 40 students (9.5%), and Grade 12 had 72 students (17.0%). All volunteers were native Persian speakers and were enrolled in English language courses as part of their national education curriculum, which emphasizes English instruction starting in the seventh grade. The average duration of English study among these students was approximately 3 to 9 years, reflecting their early introduction to the language.

Additionally, it is important to highlight that a post-hoc power analysis conducted with G*Power revealed that our sample size (N = 422) was sufficient, achieving a power level greater than .80 to identify the significant effects found in our model, in accordance with an alpha level of .05 and the effect sizes observed. According to Kline (2023), a sample size of 200 or more is viewed as acceptable for structural equation modeling (SEM) analyses involving models of comparable complexity.

3.2. Materials and Instruments

3.2.1. Growth Language Mindset (GLM)

To evaluate GLM among our collaborators, this study utilized the Language Mindsets Inventory (LMI) formulated by Lou and Noels (2017). The LMI comprises 18 items designed to assess two aspects of mindset (fixed and growth) in the language acquisition environment; however, this research concentrated solely on the growth mindset dimension, employing nine pertinent items. The research tool divided into three conceptual segments: GLB stands for beliefs about general language intelligence, L2B showing beliefs about second language aptitude, and ASB illustrating beliefs regarding age sensitivity in language learning. Participants provided their responses using a five-point Likert scale, where 1 indicated "strongly disagree" and 5 represented "strongly agree." The LMI demonstrated good internal consistency, with a Cronbach's alpha of 0.78. In addition, the inventory underwent several validity assessments, including confirmatory factor analyses (CFAs), which confirmed its theoretical basis rooted in Dweck's mindset theory (Parada et al., 2022). The LMI successfully differentiates language learning mindset orientations, demonstrating robust validity through correlational alignment with existing

mindset assessment tools. The average variance extracted (AVE) values further corroborated its convergent validity, affirming the LMI as a dependable tool for assessing language mindsets in educational contexts (Lou & Noels, 2017). The CFA results supported the construct validity of the GLM scale employed in this study, with fit indices reflecting a satisfactory model fit (χ^2/df = 3.2, CFI = 0.93, TLI = 0.92, RMSEA = 0.03, SRMR = 0.06). Additionally, the scale exhibited powerful internal consistency, as evidenced by a Cronbach's alpha (α) of 0.83 (Tabachnick et al., 2013). A representative question extracted from this scale is: "I believe that anyone can learn a second language if they try hard enough".

3.2.2. Questionnaire of Self-Efficacy in Learning a Foreign Language (QSLL)

Participants in the study completed the questionnaire of self-efficacy in learning a foreign language (QSLL) developed by Putwain et al. (2022), and composed of 11 items and developed as part of the initial phase of the research. The research tool exhibited robust psychometric integrity, revealing a Cronbach's alpha value of .87, which substantiates its dependable measurement capabilities for evaluating FLS. The main subscales include: L2 reception self-efficacy, which pertains to reading and listening skills, and L2 production self-efficacy, which relates to speaking and writing skills. The QSLL implemented a quintet-point attitudinal scale for participant responses, where individuals evaluated their linguistic learning self-perception across a spectrum ranging from 1 (complete disagreement) to 5 (absolute affirmation). Respondents systematically indicated their confidence levels by marking their alignment with diverse declarative statements concerning language acquisition competence.

Concerning Putwain et al. (2022), the QSLL demonstrates strong evidence of validity through several rigorous psychometric evaluations. The researchers employed a factor model analysis, which revealed one general factor of L2 self-efficacy alongside two distinctive dimensions: L2 reception self-efficacy (encompassing reading and listening) and L2 production self-efficacy (covering speaking and writing). This model not only confirmed the theoretical structure of the instrument but also provided empirical support for measurement invariance across different groups of learners. Moreover, the QSLL exhibited predictive validity, indicating its effectiveness in forecasting relevant outcomes in language learning contexts. The QSLL emerges as a robust instrument for evaluating language learning self-efficacy, validating its significance and utility within contemporary educational research frameworks. (Putwain et al., 2022).

3.2.3. Short Form of Foreign Language Enjoyment Scale (S-FLES)

To measure FLE in Iranian EFL learners, the S-FLES was utilized. This scale offers a succinct yet effective assessment of FLE among learners. The S-FLES was developed based on data from a study involving 1,603 foreign language students and is organized around a three-factor hierarchical model. This multilayered model integrating teacher, personal, and social enjoyment dimensions unified under the comprehensive FLE framework. The nine-item scale capturing three dimensions of FLE, offering a succinct yet comprehensive assessment of language learning experience. Validation studies demonstrated robust internal consistency, convergent validity, and discriminant validity, establishing the S-FLES as a reliable and valid tool for measuring FLE across various educational contexts. The instrument offers remarkable methodological versatility, allowing researchers to embed it within expansive studies examining heterogeneous dimensions of foreign language learning psychological processes (Botes et al., 2021).

In accordance with statistical guidelines provided by Tabachnick et al. (2013), the confirmatory factor analysis (CFA) conducted for the S-FLES yielded favorable results, affirming its construct validity with fit indices indicating a strong model fit ($\chi^2/df = 1.78$, RMSEA = 0.033, SRMR = 0.042, CFI = 0.982, TLI = 0.961). Plus, the scale exhibited excellent internal consistency, reflected by a Cronbach's alpha of 0.92. A sample item from this scale is: "I enjoy interacting with my classmates in the language class."

3.2.4. Language Classroom Engagement Scale (LCES)

The LCES is a newly developed instrument aimed at measuring student engagement within language learning contexts. This scale comprises nine items categorized into three primary factors include behavioral engagement, emotional engagement, and cognitive engagement, with each of the mentioned aspects containing three items. The measurement instrument allows participants to quantify their experiential resonance via a quintet-point perceptual framework, spanning from minimal concordance (1) to maximal agreement (5). The LCES has demonstrated robust psychometric properties, with Cronbach's alpha values surpassing the acceptable threshold of.70 for both the total scale and its specific dimensions. Comprehensive validation processes, including exploratory and confirmatory factor analyses, have substantiated its structural validity, confirming that the LCES accurately reflects the multifaceted nature of engagement in language classrooms. Furthermore, significant correlations with needs satisfaction and academic achievement reinforce its external validity (Eerdemutu et al., 2024).

In alignment with the statistical guidelines outlined by Tabachnick et al. (2013), the findings from the confirmatory factor analysis (CFA) indicated a favorable model fit for the LCES, with fit indices reporting $\chi^2/df = 2.78$, CFI

=.961, TLI = 0.945, RMSEA =.048, and SRMR =.069. These consequences further validate the construct validity of the LCES, which exhibited strong internal consistency as confirmed via a Cronbach's alpha (α) of.84. A representative item from this scale is: "During my English language lessons, I explore different methods for solving issues".

3.3. Procedure

Based on the CFA results and pilot testing with a small sample of Iranian EFL learners (N = 36), we determined that no adaptations to the original scales were necessary. The scales were administered in English, as the participants in our study had sufficient English proficiency to comprehend the items accurately.

The study's data gathering approach was strategically developed to maximize research integrity and methodological precision. Participants were selected from Iranian EFL learners in grades 7 to 12, aged between 13 and 18 years, who were engaged in formal English language instruction beginning in the seventh grade. This demographic was chosen to provide a rich context for examining the relationships among GLM, FLS, FLE, and LCE. Before primary data gathering, research instruments underwent preliminary testing with a select student sample to validate item clarity and contextual suitability.

Data collection was conducted over several weeks using both online and paper-based questionnaires to maximize accessibility for participants. Online surveys were distributed via Google Forms, with links sent through the Shad school messaging system, while paper surveys were provided for those who preferred traditional methods or lacked reliable internet access. Clear instructions were given both verbally and in writing, emphasizing the importance of honest responses and confidentiality. Individuals were systematically apprised of their unencumbered right to terminate study involvement, with explicit assurances of maintaining full procedural autonomy and avoiding any negative consequences. Ethical authorization was received from the Ministry of Education in Iran, and informed consent was secured from both students and their guardians. Anonymity was maintained throughout the process by assigning unique identifiers to each questionnaire, ensuring that participants' responses could be analyzed while preserving their privacy.

3.4. Data Analysis

Utilizing SPSS AMOS 26 and PROCESS macro, the research conducted a serial mediation analysis to scrutinize the intricate bridging roles of FLS and FLE in the connection between GLM and LCE. Initially, the collected data were thoroughly cleaned and organized to ensure accuracy and integrity. Missing values were addressed through appropriate imputation techniques, resulting in a robust dataset. Descriptive statistics were computed

to summarize participant demographics and the initial distributions of the variables, adhering to established statistical guidelines (Meyers et al., 2016; Pallant, 2020).

A serial mediation model was specified in AMOS 26, with FLSE serving as the first mediator and FLE as the second mediator, linking GLM to LCE. The paths in the model were labeled as follows: The path from GLM to FLSE, the b Path from FLSE to FLE, and the c Path from FLE to LCE. This clear labeling facilitated an understanding of the relationships being tested (Hayes & Rockwood, 2017). The analysis involved in putting the specified model into AMOS 26, ensuring that all paths were accurately defined.

Furthermore, a bootstrap method with a sample size of 5,000 was employed to assess the significance of these mediated effects, utilizing the bias-corrected percentile method for evaluating confidence intervals (Hayes & Rockwood, 2017). Following the analysis, results were examined through output estimates that included significance levels (p-values) for each path. Significant paths indicated either full or partial mediation. The findings were systematically reported, highlighting both direct and mediated effects along with their corresponding confidence intervals and p-values. This rigorous data analysis procedure provided invaluable interpretations of how FLSE and FLE mediate the connection between GLM and LCE, contributing significantly to our understanding of language learning dynamics in Iranian EFL contexts.

4. Results and Discussion

4.1. Results

4.1.1. Preliminary Analyses

Concerning Podsakoff et al. (2012) at the initial stage of analysis, Harman's single-factor test was used to address potential common method bias (CMB) in self-report studies. The outputs uncovered that the primary aspect explained only 35.41% of the variance, indicating CMB is unlikely to be a significant issue. This suggests each measure captures distinct aspects of its construct without undue influence from social desirability biases.

In the subsequent stage of analysis, we undertook a data pre-processing step to identify any problematic responses. Initially, we gathered 500 complete responses from the administered scales, with no missing data. Prior to this stage, we had gathered 510 responses; 10 responses were removed due to excessive missing data (over 50% of items missing). Following this, we analyzed the response patterns and identified 49 responses that exhibited unusual trends, such as consistently increasing, decreasing, or remaining constant. These responses were eventually excluded from the dataset. Subsequently, we evaluated the variation in responses by determining the standard deviation for each individual's answers. This evaluation revealed that 29 respondents displayed low variability ($SD < 0.5$) in their responses, which

led to their exclusion from the sample as well. Ultimately, this process refined our dataset to a total of 422 valid cases, noting that we employed list wise deletion to handle the remaining missing data, as the proportion of incomplete data per variable was very low (less than 1%). While these data cleaning procedures reduced our sample size, we believe they were necessary to guarantee the soundness of our results.

As detailed in Table 1, the descriptive statistical examination reveals nuanced insights into the average values of M = 36.42 (SD = 5.28) and M = 36.41 (SD = 6.01), respectively, suggesting high levels of both GLM and LCE among participants (N = 422). In contrast, FLE and FLS exhibit lower mean scores of M = 34.34 (SD = 6.35) and M = 34.28 (SD = 10.49), indicating that while FLE and FLS are present, they *are* less pronounced compared to GLM and LCE levels. The standard deviations reveal variability in responses, particularly with FLS showing the highest variability, which suggests diverse degrees of FLS among participants. The constructs also show varying normality: GLM (Skewness = -0.80, Kurtosis = 2.41) and LCE (Skewness = -0.89, Kurtosis = 1.41) exhibit significant left skewness and sharper peaks, while FLE (Skewness = -0.73, Kurtosis = 1.31) has less pronounced skewness. FLS (Skewness = -0.14, Kurtosis = -0.37) is closest to normal distribution (Tabachnick et al., 2013).

Correlation analysis reveals significant relationships among all constructs at the $p < .01$ level. The highest statistical association is recognized between LCE and FLE ($r = 0.668$, $p < 0.001$), uncovering that elevated classroom engagement is significantly tied to increased enjoyment in foreign language learning contexts. Additionally, GLM correlates positively with LCE ($r = 0.562$, $p < 0.001$) and FLE ($r = 0.408$, $p < 0.001$), implying that fostering GLM enhances LCE and FLE. Besides, GLM shows a positive correlation with FLS ($r = 0.265$, $p < 0.001$) while LCE correlates with FLS ($r = 0.456$, $p < 0.001$). These results stress the necessity of promoting a growth mindset and engaging classroom environments to enhance students' overall experiences in foreign language education, as indicated by the strong statistical significance of these relationships.

4.1.2. SEM Analyses

The analysis conducted using AMOS 24 revealed significant relationships among the studied variables: GLM, FLS, FLE, and LCE. Structural equation modeling enabled comprehensive variable interaction analysis, revealing direct and indirect relational pathways through sophisticated statistical techniques. (Figure 2). The analysis evaluates the proposed hypotheses relevant to the effects of GLM on FLS, FLE, and LCE using the SEM results.

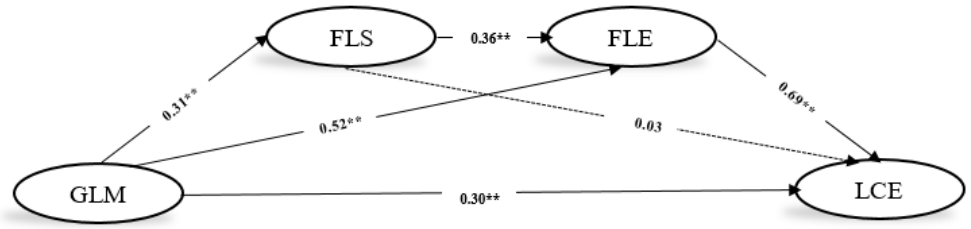
Table 1

Descriptive Statistics and Correlations (N = 422)

Construct	M (SD)	Skewness	Kurtosis	GLM	FLS	FLE	LCE
GLM	36.41 (5.28)	-0.8	2.41	-	-	-	-
FLS	34.28 (10.48)	-0.14	-0.37	.265**	-	-	-
FLE	34.33 (6.34)	-0.73	1.31	.408**	.487**	-	-
LCE	36.41 (6.01)	-0.89	1.41	.562**	.456**	.668**	-

Figure 2

The Results of the Final Structural Model



The Default Model exhibited a CMIN of 500.102 with 631 freedom level (DF), yielding a p-value < 0.001 and a CMIN/DF ratio of 0.791, which indicates an excellent fit as the ratio is well below 1. In contrast, the Saturated Model achieved a perfect fit with a CMIN of 0, while the Independence Model displayed a considerable lack of fit with a CMIN of 8000.196 and DF of 703 (p < 0.001, CMIN/DF = 11.365).

When evaluating baseline comparisons, the Default Model demonstrated strong performance, with a Normed Fit Index (NFI) of 0.950, a Relative Fit Index (RFI) of 0.933, an Incremental Fit Index (IFI) of 0.980, a Tucker-Lewis Index (TLI) of 0.973, and a Comparative Fit Index (CFI) of 0.980. These values, being close to 1, indicate an excellent fit the resulted model based on our pull of data in this context. In contrast, while the Saturated Model achieved a perfect fit (1.000), the Independence Model showed no fit at all (0.000). Additionally, the Default Model's Root Mean Square Error of Approximation (RMSEA) was 0.030, with a 90% confidence interval ranging from 0.025 to 0.035 and a PCLOSE value of 0.100, further confirming an outstanding model fit.

The analysis further validates the proposed hypotheses concerning the interrelationships among GLM, FLS, FLE, and LCE. The results reveal a significant positive effect of GLM on FLS, indicated by a path coefficient of β = 0.31, with a standard error (SE) of 0.05 and a p-value of less than 0.001 (H1).

Moreover, GLM also exerts a positive influence on FLE, with a coefficient of $\beta = 0.52$, SE = 0.05, and $p < 0.001$ (H2). While GLM directly affects LCE with regards to our outputs ($\beta = 0.30$, SE = 0.05, $p < 0.001$) (H3), the statistical evaluation indicates that FLS significantly influences FLE regarding the resulted outputs ($\beta = 0.36$, SE = 0.05, $p < 0.001$) (H4), but has a negligible direct effect on LCE considering the registered numbers ($\beta = 0.03$, SE = 0.05, $p = 0.50$) (H5), leading to the rejection of this hypothesis. In contrast, FLE exhibits a strong positive impact on LCE with $\beta = 0.69$, SE = 0.05, and $p < 0.001$ (H6).

Additionally, the observed indirect influences provide strong evidence for the mediating roles of FLS and FLE. The influence of GLM on FLE via FLS is significant, with a coefficient of $\beta = 0.11$, standard error (SE) of 0.02, and a p-value of less than 0.001 (H7), which supports the hypothesis that FLS serves as a mediator in this relationship. In contrast, the pathway from GLM to LCE through FLS is not significant, yielding $\beta = 0.01$, SE = 0.01, and $p > 0.001$ (H8), thereby rejecting the hypothesis that FLS mediates between the pointed independent variable (IV) and dependent variable (DV) in this investigation. Furthermore, the connection from FLS to LCE via FLE is confirmed with an effect size of $\beta = 0.25$, SE = 0.04, and $p < 0.001$ (H9), indicating that FLE effectively mediates the relationship between FLS and LCE. The effect of GLM on LCE through the mediating influence of FLE is also validated, with $\beta = 0.41$, SE = 0.05, and $p < 0.001$ (H10). Overall, the total effect of GLM on LCE is considerable, with $\beta = 0.71$, SE = 0.05, and $p < 0.001$ (H11), underscoring the significant impact of GLM on LCE primarily through the mediating roles of both FLS and FLE (refer to Table 2).

Table 2

Direct and Indirect Effects of SEM Analysis

Path	*B*	SE	95% CI [Lower bound; Upper bound]	*P-value*	*Decision*
Direct Effects					
GLM → FLS	0.31	0.05	[0.21; 0.41]	<0.001	Supported
GLM → FLE	0.52	0.05	[0.49; 0.69]	<0.001	Supported
GLM → LCE	0.30	0.05	[0.20; 0.40]	<0.001	Supported
FLS → FLE	0.36	0.05	[0.26; 0.46]	<0.001	Supported
FLS → LCE	0.03	0.05	[-0.07; 0.13]	0.50	Rejected
FLE → LCE	0.69	0.05	[0.59; 0.79]	<0.001	Supported
Indirect Effects					
GLM→FLS→FLE	0.11	0.02	[0.07; 0.15]	<0.001	Supported

GLM→FLS→LCE	0.01	0.01	[-0.02; 0.04]	0.75	Rejected
GLM→FLE→LCE	0.41	0.05	[0.31; 0.51]	<0.001	Supported
GLM→FLS→FLE→LCE	0.25	0.04	[0.18; 0.32]	<0.001	Supported
Total Effects					
GLM→LCE	0.71	0.05	[0.61; 0.81]	<0.001	Supported

To enhance confidence in the indirect effects of our mediation model, we used a bootstrapping method with 5,000 iterations, which simulates data collection through random resampling of the original data. This approach allows for more accurate estimation of the sampling distribution for indirect influences and their standard errors. We calculated 95% confidence intervals (CIs) employing the bias-corrected bootstrap technique, confirming that an indirect effect is significant if its CI excludes zero. This robust methodology reinforces the credibility of our mediation analysis findings (Hayes & Rockwood, 2017).

Regarding the bootstrapping analysis, the indirect effect of GLM on LCE through FLE was robust, with a path coefficient of $\beta = 0.41$ and a 95% confidence interval ranging from [0.31; 0.51], excluding zero, thereby asserting the significance of this mediation pathway. Additionally, the mediation effect of FLS between GLM and FLE was also confirmed, with $\beta = 0.11$ and a confidence interval of [0.07; 0.15], further validating the integral role of FLS in enhancing FLE. In contrast, the direct path from FLS to LCE yielded a non-significant result ($\beta = 0.03$, $p = 0.50$) and the indirect route from GLM to LCE through FLS was additionally non-significant ($\beta = 0.01$, $p = 0.75$), indicating that FLE serves as the primary mediator through which GLM influences LCE. Overall, the results from bootstrapping substantiate the stability and reliability of the model's pathways.

4.2. Discussion

The current project aimed to clarify the complex relationships among GLM, FLS, FLE, and LCE in the context of Iranian EFL learners. Our findings indicated that FLE acts as an important intermediary in the connection between GLM and LCE, thereby validating the proposed serial mediation model rooted in positive psychology. It is worth mentioning that the significant indirect effects through FLE may overshadow any direct effect of FLS on LCE. In other words, self-efficacy might primarily influence engagement by first boosting enjoyment.

The outcomes of this study are in agreement with prior literature that illuminates the significance of psychological factors in language learning. For example, Derakhshan and Fathi (2024a) demonstrated that a growth mindset positively influences second language speaking performance through enhanced self-regulation. This aligns with our results, which suggest that

learners who believe their skills can be developed are more predisposed to engage in learning a language, thereby creating a more engaging classroom environment conducive to LCE. Moreover, our findings support earlier research by Huang et al. (2024), which affirmed a clear correlation between self-efficacy and student engagement. Our analysis revealed a positive correlation between FLS and LCE, pointing that learners with greater self-efficacy are more driven to engage in classroom activities, leading to better educational outcomes. This is echoed by Sadoughi and Hejazi (2023), who emphasized the importance of a supportive classroom climate in fostering student engagement. Noteworthy, Sadeghi and Ganji (2020) highlighted that cooperative learning techniques enable educators to build a more relaxed and engaging classroom environment, where students are encouraged to participate and benefit cognitively.

Moreover, the findings resonate with Seligman's PERMA framework, particularly concerning Positive Emotion and Engagement. By incorporating GLM into this framework, it becomes evident that promoting a growth mindset not only fosters positive emotional states but also enhances engagement through increased self-efficacy and enjoyment. This holistic approach emphasizes the pivotal function of psychological factors in acquiring a new language. Crucially, the significant mediating effects observed for FLE highlight its central role in translating the benefits of a growth mindset into tangible classroom engagement. Additionally, the significant mediating effects of FLS and FLE imply that these constructs act as crucial pathways through which GLM impacts LCE. This deepens our understanding of how psychological constructs interact within educational contexts, especially in EFL settings where learner engagement is vital for success. Specifically, our findings support Hypotheses 7, 9, 10, and 11, demonstrating that FLS and FLE, both individually and serially, mediate the impact of GLM on LCE. While Hypothesis 8 (FLS mediating GLM on LCE) was not directly supported by a significant direct mediating effect, the serial mediation (Hypothesis 11) suggests that FLS still plays a crucial role in the indirect pathway through FLE.

In addition, the total effect of GLM on LCE is substantial. This suggests that a comprehensive approach that combines growth mindset interventions with strategies to boost enjoyment and self-efficacy can greatly influence student engagement in Iranian EFL classrooms. While FLS has a minimal direct impact on LCE, its indirect effect through FLE indicates that improving self-efficacy can advance engagement by making learning more enjoyable.

The products highlighted the bridge function of FLE in the relationship between GLM and LCE. Previous studies have documented an interdependence between enjoyment in language learning and increased engagement (Mohammad Hosseini et al., 2022). Our findings extend this

understanding by demonstrating that students who find enjoyment have greater tendency to participate meaningfully within academic practices. This suggests that educators should prioritize creating enjoyable learning experiences to enhance student engagement. Also, the interplay among GLM, FLS, and FLE underscores the necessity for educators to actively cultivate a growth mindset within their classrooms. Dweck (2015; 2017) argues that challenges are opportunities for growth and learning transformation. This mindset perspective enhances psychological resilience and skill acquisition. Reframing obstacles enables more adaptive and innovative cognitive strategies.

This study reveals intricate dynamics between leadership models, learning structures, and educational contexts among Iranian EFL learners. By demonstrating the significant mediating roles of psychological factors, the research validates a serial mediation model grounded in positive psychology. The findings illuminate how strategic psychological interventions can transform learning experiences, emphasizing the critical importance of growth mindset approaches in educational environments. By bridging conceptual knowledge with actionable outcomes, the current exploration provides a thorough framework to interpret learner engagement and provides valuable guidance for educators seeking to optimize language learning strategies.

5. Conclusion and Implications

The present investigation has explored the intricate relationships among GLM, FLS, FLE, and LCE through proposing a SEM model among Iranian EFL learners. The findings demonstrate that GLM significantly influences LCE through the mediating roles of both FLS and FLE. In particular, a growth mindset appears to cultivate increased self-efficacy and enjoyment among language learners, ultimately leading to greater participation in classroom tasks. This supports within the realm of literature that delineates the priority of psychological constructs in advancing language education outcomes (Derakhshan et al., 2022; Huang et al., 2024; Sadoughi & Hejazi, 2023).

Acknowledging the context-specificity of our findings, we conclude that our serial mediation model offers valuable insights into the relationships between the mentioned variables specifically among Iranian EFL learners. These findings build upon established research highlighting the influence of mindset and positive emotions on learning outcomes (Derakhshan & Fathi, 2024a; Khajavy et al., 2021; Wang et al., 2024). Nevertheless, due to the unique cultural and educational characteristics present in the Iranian EFL context, it is advisable in this research to be prudent when applying these outputs to other groups.

The study, while providing significant insights into psychological learning constructs, confronts inherent methodological constraints. The research's primary limitation stems from its focused cultural context of Iranian EFL learners, potentially constraining broader generalizability across diverse educational environments, including universities or different cultural settings. Furthermore, the cross-sectional research design introduces methodological boundaries, preventing definitive causal interpretations of the complex relationships between leadership models, learning structures, and contextual educational dynamics. Also, our study primarily focuses on positive psychology constructs, which may overlook the impact of negative factors like language anxiety. Lastly, given the range of student grade levels (7-12), future studies should consider more homogenous samples to isolate potential developmental influences. While our analyses found no significant grade-level differences, focused research can provide more nuanced insights.

Future research could expand upon these findings through the use of longitudinal to examine how the noted associations evolve over time. Moreover, exploring these dynamics in diverse cultural contexts or universities could enhance our understanding of their applicability across different educational environments. Exploring other mediators or moderators may offer a deeper insight into the ways psychological factors affect engagement in language learning. Note that future research could explore alternative model specifications to further investigate the complex interplay of these variables. Moreover, acknowledging that our focus was primarily on positive psychological constructs, we note that important external variables such as prior English proficiency and socioeconomic background were not controlled. Future research should account for these factors to better understand the nuanced determinants of LCE.

It is also suggested to explore how some negative factors interact with self-efficacy, enjoyment, and growth mindset in foreign language learning. While our model focuses on the stated psychological constructs, we do not intend to imply that these are the only determinants of engagement. Indeed, we recognize the potential influence of external factors. In addition, forthcoming inquiries need to analyze the influence of external elements like teaching quality and socio-economic background on learner engagement. Exploring these contextual variables will offer a broader perspective of the multifaceted nature of LCE and its determinants. Last but not least, this paper’s cross-sectional methodology restricts the capacity to observe the changing interactions of our variables over time, suggesting a need for future longitudinal research. Consequently, future longitudinal or experimental studies are needed to confirm the causal directionality implied by our model.

In summary, this project illuminates the meaningfulness of psychological factors in language education and provides practical guidance

for educators seeking to develop more stimulating and encouraging learning settings. By nurturing a growth mindset, boosting self-efficacy, and promoting enjoyment within language development, educators can substantially increase student engagement and overall educational success.

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