

A Study on the Cognitive Mechanism of Adult English Learning Motivation and Pedagogical Intervention Strategies from the Perspective of Conceptual Metaphor

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Abstract

This study explores the cognitive mechanism of adult English as a Foreign Language (EFL) learners' learning motivation from the perspective of Conceptual Metaphor Theory and examines the effectiveness of corresponding pedagogical intervention strategies. A mixed-method approach was adopted. Qualitative analysis was used to identify how conceptual metaphors mediate learners' motivation cognition, while quantitative analysis was conducted with 72 adult EFL learners from two intact classes, including an experimental class and a control class. The results show that adult EFL learners' motivation is cognitively structured through metaphorical schemas such as “learning as a journey,” “learning as task completion,” and “learning as challenge overcoming.” These schemas influence learners' task interpretation, effort allocation, and persistence. Based on this mechanism, metaphor-based pedagogical strategies were implemented through metaphor-oriented framing, staged learning tasks, and reflective activities. After the intervention, the experimental class scored significantly higher than the control class in both learning motivation cognition and learning motivation performance ($p < 0.05$). The findings indicate that conceptual metaphor-based instruction can effectively enhance adult EFL learners' motivation cognition and promote its transformation into observable learning behaviors.

Keywords: Conceptual Metaphor, Learning Motivation, Pedagogical Intervention

Introduction

Learning motivation is crucial in adult EFL learning, but it is often unstable. This problem is not fully explained in existing research. Most studies focus on psychological and socio-educational factors, such as attitudes, self-concept, and external goals. However, these approaches mainly describe motivation and pay little attention to the cognitive mechanism. From a cognitive perspective, motivation is cognitively structured. Conceptual Metaphor Theory suggests that abstract concepts are understood through concrete experience. Adult EFL learners often use metaphors such as “learning is a journey” or “learning is a struggle.” These metaphors influence how learners understand tasks, evaluate progress, and deal with difficulties. As a result, they shape learning motivation. However, the role of conceptual metaphor in motivation is still underexplored, and its connection with pedagogical intervention remains unclear. Therefore, this study examines the cognitive mechanism of motivation from the perspective of conceptual metaphor and proposes pedagogical intervention strategies based on this mechanism.



Research Objectives

1. Objective: To analyze the cognitive mechanisms underlying learning motivation in adult EFL learning from the perspective of conceptual metaphor.
2. Objective: To design pedagogical intervention strategies based on the cognitive mechanisms underlying learning motivation and to empirically examine the effectiveness of the pedagogical intervention strategies in enhancing learning motivation.

Scope of the Research

1. Population Scope: This study focuses on adult EFL learners. The sample consists of 72 students from two intact classes of Grade 2024 in the School of Foreign Languages at a university. One intact class ($n = 36$) is designated as the experimental group, while the other intact class ($n = 36$) serves as the control group. All participants have prior experience in English learning.

2. Variable Scope: This study includes two variables: pedagogical intervention strategies and intervention outcomes. Pedagogical intervention strategies are treated as the independent variable. The strategies are designed based on conceptual metaphor and are used to intervene in learners' cognition of learning motivation. Intervention outcomes are treated as the dependent variable, including two aspects: cognition of learning motivation and English learning performance. Cognition of learning motivation refers to learners' understanding of learning motivation and is examined by comparing pre-intervention and post-intervention changes. English learning performance refers to learners' performance in English learning and is examined by comparing pre-intervention and post-intervention performance.

3. Time Scope: The entire research period spans from November 2024 to October 2025 and is divided into three stages. The first stage (November 2024 to January 2025) focuses on analyzing the cognitive mechanisms underlying learning motivation in adult EFL learners and developing conceptual metaphor-based pedagogical intervention strategies. The second stage (February 2025 to July 2025) involves the instructional practice, during which the intervention is implemented based on the strategies developed in the first stage. Data are collected before the instructional intervention using the Learning Motivation Cognition Scale and the Learning Motivation Performance Scale to obtain baseline measures, followed by the implementation of the instructional intervention, and data are collected again after the intervention using the same instruments to examine changes in learners' motivation cognition and learning performance. The third stage (August 2025 to October 2025) focuses on systematically organizing the cognitive mechanisms identified in the study and conducting statistical analysis of the collected data, in order to generate structured and systematic research findings.

Literature Review

Existing studies on this topic mainly focus on two directions.

The first focuses on learning motivation in adult English learning. Wang Xiaodong (2013) finds that adult English learners in self-taught programs generally lack intrinsic motivation, such as interest in learning English and personal development needs, while extrinsic motivation, mainly driven by passing exams and obtaining certificates, dominates. Xu Xia and Xu Dejin (2013) argue that learning motivation is the internal driving force guiding adult English learning and directly affects learning achievement. They further point out that adult learners' motivation is mainly goal-oriented and externally driven, while interest serves as the core of intrinsic motivation that sustains effective learning. Zhou Baoqiang (2007) finds



that learning motivation serves as the psychological driving force that initiates and sustains adult English learning and is closely related to learning achievement. The study shows that most adult learners possess relatively strong motivation, with deep motivation dominating, while learners with weaker motivation can still maintain learning through external pressure and a sense of responsibility. Li finds that adult English learners generally lack intrinsic motivation, while their learning is mainly driven by external and instrumental motivation related to work and practical needs. The study further indicates that without sufficient intrinsic motivation, learners show low autonomy and weak persistence, which negatively affects the sustainability of English learning. Bai Lan (2015) argues that learning motivation is one of the most dynamic factors in adult English learning and plays a key role in improving learners' interest and learning outcomes. The study also points out that adult learners often face problems such as weak motivation and poor learning foundation, which affect their learning effectiveness. Wang (2013) finds that many students' English learning motivation is mainly driven by passing exams and achieving future career goals.

The second focuses on conceptual metaphor-based approaches in English teaching. Liu Ru (2021) argues that conceptual metaphor is not merely a linguistic phenomenon but a cognitive mechanism that structures human understanding and can be applied to English learning. The study further shows that applying conceptual metaphor in vocabulary teaching enhances learners' metaphor awareness and facilitates vocabulary comprehension and retention. Shao Yan (2020) argues that conceptual metaphor is a fundamental cognitive mechanism underlying language use and that language learning should be based on conceptual and metaphorical structures rather than isolated grammar and vocabulary. The study further shows that integrating conceptual metaphor into chunk-based learning can enhance learners' metaphor awareness and promote more natural and fluent language acquisition. Li Yan (2016) argues that conceptual metaphor is a cognitive mode that helps L2 learners understand vocabulary meanings through projection from core meanings to related meanings. The study further points out that cultivating metaphor awareness and autonomous learning ability can improve learners' vocabulary comprehension, memory, and independent learning efficiency. Cui Xiangping (2016) argues that conceptual metaphor is not only a linguistic phenomenon but also a cognitive mechanism that facilitates vocabulary acquisition through the metaphorical extension of word meanings. The empirical study further shows that incorporating conceptual metaphor theory into vocabulary teaching can significantly enhance learners' comprehension, retention, and interest, thereby improving the efficiency of English vocabulary learning.

Overall, existing studies mainly focus on two directions: learning motivation in adult English learning and conceptual metaphor-based approaches in English teaching. Research on learning motivation shows that adult learners are predominantly driven by extrinsic, goal-oriented factors, while intrinsic motivation is relatively weak, which affects learning autonomy and sustainability. Meanwhile, studies on conceptual metaphor indicate that it, as a cognitive mechanism, can enhance vocabulary comprehension, retention, and language use by strengthening metaphor awareness and meaning construction. On this basis, integrating learning motivation with conceptual metaphor-based instruction is meaningful, as it can combine cognitive and affective dimensions to optimize the learning process and further improve adult English learning outcomes. However, limited attention has been paid to how conceptual metaphor-based instruction may influence adult learners' motivation, thus highlighting the need to explore this relationship in order to better enhance both learning motivation and language learning effectiveness.



Research Methodology

1. **Research Methodology:** This study adopts a mixed-method approach, combining qualitative and quantitative methods. The qualitative component focuses on exploring the cognitive mechanisms underlying learning motivation in adult EFL learning. It draws on literature review, reflection on teaching practices, classroom observations, and face-to-face interviews to gain a comprehensive understanding of learners' metaphorical cognition of English learning. The quantitative component focuses on examining the effectiveness of conceptual metaphor-based pedagogical intervention strategies in adult EFL learning. It involves a comparative analysis of learners' learning motivation and learning performance before and after the implementation of the instructional strategies, in order to determine their effects on enhancing motivation cognition and overall learning outcomes.

2. **Research Steps:** The study is conducted in three stages. The first stage analyzes the cognitive mechanisms underlying adult EFL learners' learning motivation and develops corresponding pedagogical intervention strategies. The second stage involves implementing the instructional intervention in two intact classes of adult EFL learners, with one class serving as the experimental group receiving conceptual metaphor-based instruction and the other as the control group following conventional teaching methods. The third stage evaluates the effectiveness of the intervention through data analysis and summarizes the research findings.

3. Data Collection: Before and after the instructional intervention, data are collected from adult EFL learners using two instruments. First, the adult EFL learners' cognition of learning motivation is measured through a self-designed Learning Motivation Cognition Scale. This scale focuses specifically on the adult EFL learners' understanding of their motivation for learning English and consists of four dimensions: intrinsic motivation cognition, extrinsic motivation cognition, goal-oriented motivation cognition, and metaphor-based motivation cognition. The scale contains 24 items, with 6 items for each dimension. Each item is rated on a five-point Likert scale, ranging from 1 ("strongly disagree") to 5 ("strongly agree"). Higher scores indicate a higher level of cognition of learning motivation. Second, the adult EFL learners' learning motivation performance is assessed through a self-designed Learning Motivation Performance Scale using a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). The scale consists of three dimensions: learning engagement (8 items), task commitment (6 items), and learning persistence (6 items), with a total of 20 items. Each item is rated from 1 to 5 points, yielding a total score ranging from 20 to 100. The dimension scores are calculated by summing the item scores within each dimension. Higher scores indicate stronger learning motivation performance.

4. **Data Analysis:** The data collected from the Learning Motivation Cognition Scale and the Learning Motivation Performance Scale were analyzed using both descriptive and inferential statistical methods to examine changes in learners' motivation before and after the instructional intervention. Descriptive statistics were first conducted to calculate the mean (M) and standard deviation (SD) for each dimension in order to summarize the overall distribution and central tendency of the data. Subsequently, paired sample t-tests were employed to compare pre- and post-intervention scores within each class to determine whether significant changes occurred over time, while independent sample t-tests were used to examine differences between the experimental class and the control class at both stages. All statistical analyses were performed using SPSS, with the level of statistical significance set at $P < 0.05$.



Research Results

1. Learning motivation in adult EFL learners is not a static psychological variable but a dynamically constructed cognitive system mediated by conceptual metaphors. Conceptual metaphors function as cross-domain mapping mechanisms that project abstract motivational constructs (e.g., effort, persistence, goal attainment) onto concrete experiential domains, thereby transforming diffuse motivational awareness into structured cognitive schemas. At the structural level, conceptual metaphors organize learning motivation into coherent representational frameworks. Dominant schemas such as “learning as a journey,” “learning as task completion,” and “learning as challenge overcoming” provide learners with interpretive models through which the learning process is cognitively structured and meaningfully understood. At the regulatory level, these metaphorical schemas guide motivational processing by shaping task interpretation, directing attentional focus, and regulating effort allocation. Specifically, when learning is conceptualized as a journey, learners are more likely to perceive progress as incremental and continuous; when framed as task completion, motivation is organized around goal attainment; when framed as challenge overcoming, learners exhibit stronger resilience in the face of difficulty. At the behavioral level, the metaphor-mediated cognitive system is externalized through observable learning behaviors, including learning engagement, task commitment, and persistence. This results in a systematic pathway of “cognitive construction-motivational regulation-behavioral manifestation,” in which conceptual metaphors serve as the core mechanism linking cognition and action.

2. Learning motivation can be continuously shaped in classroom instruction through metaphor-based pedagogical strategies. Metaphor-oriented framing can be incorporated by presenting learning as a structured process, helping learners perceive long-term development and incremental progress. Learning tasks should be organized to reflect metaphors, such as setting staged goals and incorporating challenge-based activities, allowing students to view learning as problem-solving. Routine reflective activities like self-evaluations, learning logs, or guided discussions can help learners reinterpret difficulties as part of their learning path and maintain engagement.

3. As shown in Table 1, before the instructional intervention, there were no statistically significant differences between the two groups in intrinsic motivation cognition, extrinsic motivation cognition, goal-oriented motivation cognition, metaphor-based motivation cognition, or the total score ($P > 0.05$). After the intervention, scores in all the above dimensions and the total score increased in both groups, and the experimental group scored higher than the control group ($P < 0.05$).



Table 1: Comparison of Learning Motivation Cognition Scale Scores Between Control Group and Experimental Group Before and After the Instructional Intervention

Group	Intrinsic Motivation Cognition		Extrinsic Motivation Cognition		Goal-oriented Motivation Cognition		Metaphor-based Motivation Cognition		Total	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Control Group	17.50 ±1.13	19.00± 0.83*	17.00± 0.83	18.11± 0.75*	16.50± 1.13	17.47±0 .51*	15.75±0. 84	16.50±0. 51*	16.69±1 .18	17.77± 1.13*
Experimental Group	17.33 ±1.07	23.00± 0.83*	17.03± 0.81	23.00± 0.83*	16.53± 1.16	23.50±0 .51*	15.78±0. 83	24.50±0. 51*	16.65±1 .14	23.50± 0.92*
t	0.655	20.446	0.155	26.228	0.111	50.163	0.152	66.551	0.146	23.5
P	0.257	< 0.001	0.439	< 0.001	0.456	<0.001	0.440	<0.001	0.442	< 0.001

*Note: P < 0.05 indicates a significant difference compared with pre-intervention values within the same group.

4. As shown in Table 2, before the instructional intervention, there were no statistically significant differences between the two groups in learning engagement, task commitment, learning persistence, or the total score ($p > 0.05$). After the intervention, scores in all dimensions and the total score increased in both groups, and the experimental group scored higher than the control group, with statistically significant differences ($p < 0.05$).

Table 2: Comparison of Learning Motivation Performance Scores Between Control and Experimental Groups Before and After the Intervention

Group	learning engagement		task commitment		learning persistence		Total	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Control Group	24.50 ±1.13	27.50± 1.13*	17.06± 0.83	19.00± 0.83*	16.64± 0.96	18.42±1.05*	58.19±1.86	64.92±2.13*
Experimental Group	24.83 ±0.77	35.00± 0.83*	17.00± 0.86	26.00± 0.83*	16.92± 0.84	25.42±1.05*	58.75±0.97	86.42±1.78*
t	1.448	32.095	0.301	35.781	1.317	28.284	1.602	46.472
P	0.076	<0.001	0.382	<0.001	0.096	<0.001	0.057	<0.001

*Note: P < 0.05 indicates a significant difference compared with pre-intervention values within the same group.

Discussion

This study provides a context-specific understanding of learning motivation by situating it within adult EFL English learning. The findings indicate that learning motivation is not a static psychological construct but a dynamically structured cognitive system mediated by conceptual metaphors. Given that adult EFL learners often experience prolonged learning cycles, limited exposure, and fluctuating engagement, metaphorical schemas such as “learning English is a journey,” “learning English is task completion,” and “learning English is overcoming challenges” play a central role in shaping their perception of the learning process. At the structural level, these metaphors transform abstract and long-term language learning into

concrete and manageable cognitive representations. At the regulatory level, they guide how learners interpret language tasks, allocate effort, and sustain goal orientation in vocabulary acquisition, reading comprehension, and communicative practice. At the behavioral level, this structured cognition is manifested in observable improvements in engagement, persistence, and task commitment in English learning activities. A good point in case is that metacognitive monitoring is crucial in metacognition in language learning, in which the way learners actively assess and regulate their own cognitive processes when learning a language (Hu&Yordchim,2026). These findings extend existing research by demonstrating that learning motivation in adult EFL contexts can be systematically structured and reshaped through metaphor-mediated cognitive mechanisms.

The analysis of cognitive mechanisms reveals that adult EFL learners’ motivation is shaped by conceptual metaphors, which mediate their understanding of the learning process. Based on these insights, integrating metaphor-driven pedagogical strategies into daily instruction is not only theoretically sound but also practically essential. These strategies offer a structured approach to help learners perceive long-term, incremental progress, which is crucial for sustaining motivation over time. Conceptual metaphors such as “learning as a journey” and “learning as overcoming challenges” provide a coherent framework that aligns with the cognitive needs of adult learners, enabling them to navigate complex language tasks more effectively. This alignment not only clarifies the learning process but also actively engages learners by restructuring how they conceptualize tasks, leading to deeper involvement and greater persistence in English learning. Based on this rationale, the present study designed and implemented a set of metaphor-based pedagogical intervention strategies embedded within routine English instruction. Specifically, metaphor-oriented framing was systematically incorporated into classroom discourse, presenting English learning as a structured and progressive process to help learners perceive long-term development and incremental progress. In addition, learning tasks were organized to reflect metaphorical schemas, such as staged goal setting aligned with the “journey” metaphor and challenge-based activities corresponding to the “overcoming challenges” metaphor, enabling learners to approach vocabulary acquisition, reading comprehension, and communicative tasks as goal-directed and problem-solving processes. Furthermore, regular reflective practices—including learning logs, self-evaluations, and guided discussions—were integrated to support learners in reinterpreting learning difficulties as meaningful stages within their learning trajectory. Through the coordinated implementation of these components, the intervention aimed to continuously reinforce, regulate, and sustain learning motivation within the process of adult EFL English learning.

The quantitative analysis results further support this interpretation. Although both groups showed improvement, the experimental group demonstrated significantly greater gains in both motivation cognition and motivation performance ($p < 0.05$), particularly in metaphor-based cognition and behavioral dimensions such as engagement and persistence in English learning tasks. This pattern of improvement is not incidental but closely related to the specific instructional strategies implemented. The use of metaphor-oriented framing helped learners construct clearer cognitive representations of the learning process, which directly enhanced metaphor-based motivation cognition. Meanwhile, staged task design aligned with the “journey” metaphor enabled learners to perceive incremental progress in vocabulary acquisition and language use, thereby strengthening goal-oriented motivation. Challenge-based activities, corresponding to the “overcoming challenges” metaphor, provided structured opportunities for learners to engage with difficulty, which contributed to increased persistence and task commitment. In addition, reflective practices such as learning logs and self-evaluations



facilitated the reinterpretation of learning difficulties, reinforcing the stability of motivational cognition over time. Together, these strategy components functioned in coordination to strengthen the linkage between cognitive representation and observable learning behavior in the EFL context.

Moreover, the sustained improvement observed in the experimental group reflects the cumulative effect of the continuous interaction between cognitive mechanisms and instructional strategies. Repeated exposure to metaphor-consistent instructional input gradually stabilized learners’ cognitive schemas, while the structured task progression and reflective regulation ensured that these schemas were consistently activated and reinforced in actual language learning activities. This explains why the improvement in the experimental group was not only greater in magnitude but also more consistent across different dimensions of motivation cognition and performance. In contrast, the control group, lacking such structured cognitive support, showed improvements that were more fragmented and less stable. Therefore, the effectiveness of the intervention lies not merely in introducing metaphorical concepts, but in systematically integrating metaphor-based framing, task design, and reflective practices to continuously shape and sustain learning motivation in adult EFL English learning.

Recommendations

1. Recommendations for the application of research results

Based on the identified mechanism of “cognitive construction-motivational regulation–behavioral manifestation,” it is recommended that instructional practice focus on strengthening the mapping between conceptual metaphors and learning behaviors. Teaching activities should be designed to make learners explicitly perceive learning as a structured and progressive process, so that metaphorical schemas such as “learning as a journey,” “task completion,” and “challenge overcoming” can effectively guide task interpretation and effort allocation. At the same time, learning tasks should be organized in a staged and goal-oriented manner to reinforce the regulatory function of these schemas, while reflective activities should be maintained to stabilize the transformation of motivation from cognitive representation into observable behaviors such as engagement, task commitment, and persistence. This alignment between cognitive mechanism and instructional organization is essential for sustaining the improvement observed in both motivation cognition and motivation performance.

2. Recommendations for future research

Future research may further examine the internal linkage between different dimensions of motivation cognition and behavioral performance within the pathway of “cognitive construction-motivational regulation–behavioral manifestation.” In particular, more detailed analysis can be conducted on how metaphor-based motivation cognition contributes to variations in learning engagement, task commitment, and persistence. In addition, further studies may refine the measurement of metaphor-mediated motivation by exploring the sensitivity of different dimensions to instructional intervention, thereby providing more precise evidence for the relationship between cognitive restructuring and behavioral outcomes observed in this study.

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