

# *Reflective Thinking and English Proficiency: The Moderating Effect of Achievement Motivation*

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**Abstract:** This study explores the complex interplay between reflective thinking, achievement motivation, and English proficiency among university EFL learners. Drawing upon metacognitive learning theory and achievement goal theory, the research investigates two key hypotheses: (1) that reflective thinking positively predicts English proficiency, and (2) that achievement motivation moderates this relationship. A sample of 200 Chinese university students completed standardized instruments including the Reflective Thinking Questionnaire and the Achievement Motivation Scale, with English proficiency assessed through CET-4 scores. The full questionnaire items were incorporated and validated. Descriptive statistics and Pearson correlation analysis revealed moderate positive associations among the three variables. Hierarchical regression analysis confirmed the predictive role of reflective thinking and identified a significant interaction effect: high achievement motivation amplified the positive impact of reflective thinking on English proficiency. These findings offer critical insights for EFL pedagogy, highlighting the dual importance of cognitive self-regulation and motivational engagement in language learning outcomes. Implications include the need for integrative learning interventions that develop both reflective habits and motivational orientation in language learners.

## **1. Introduction**

In the context of English as a Foreign Language (EFL) education, particularly in non-native settings, learners' cognitive and motivational characteristics significantly influence their language development. Among these, reflective thinking-defined as the metacognitive ability to analyze, evaluate, and regulate one's learning processes-has emerged as a powerful predictor of academic success. However, the extent to which reflective thinking translates into improved English proficiency may depend on other psychological traits, such as achievement motivation, or the internal drive to achieve academic goals [1].

This study aims to examine the direct impact of reflective thinking on English proficiency, and more importantly, to explore how achievement motivation moderates this relationship. Understanding this interaction can help educators tailor interventions to enhance both cognitive engagement and motivational commitment in English learning.

## **2. Literature Review**

### **2.1 Reflective Thinking in Language Learning**

Reflective thinking is central to learner autonomy and lifelong learning [2,3]. In EFL contexts, reflective thinking fosters deeper language processing, goal-setting, and error correction strategies. Students who regularly engage in reflective practices demonstrate stronger vocabulary retention, grammar awareness, and speaking fluency [4,5]. Metacognitive strategies-such as self-evaluation, planning, and monitoring-are often embedded in reflective thinking, enhancing learners' control over their academic outcomes [6].

### **2.2 English Proficiency and Its Determinants**

English proficiency encompasses receptive and productive skills and is often measured through standardized assessments such as the CET-4 in China. These tests examine listening, reading, writing, and translation. Research has shown that individual learner differences, including cognitive styles and language learning strategies, significantly influence proficiency levels [7].

### **2.3 Achievement Motivation as a Moderator**

Achievement motivation refers to a learner's intrinsic or extrinsic drive to succeed academically [8]. High-achieving learners typically set challenging goals, exhibit persistence, and seek out feedback [9]. As a moderator, achievement motivation may strengthen the cognitive-behavioral mechanisms underlying reflective thinking by fostering perseverance and focus.

### **2.4 Gaps in the Literature**

Although reflective thinking and motivation have been independently linked to language achievement, few studies explore their interactive effects, especially in the EFL context among university students. The moderating role of achievement motivation in enhancing cognitive efforts such as reflection is underexplored in applied linguistics research [10].

## **3. Methodology**

### **3.1 Participants**

The study will recruit approximately 200 university students enrolled in non-English majors at a private university in China. Participants will have completed at least two semesters of English instruction and possess recent CET-4 scores.

### **3.2 Instruments**

#### **3.2.1 Reflective Thinking Questionnaire (RTQ)**

Adapted from Kember et al.(2000), the RTQ includes 16 items on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree) measuring four dimensions:

Habitual Action (HA): Q1–Q4

Understanding (UN): Q5–Q8

Reflection (RE): Q9–Q12

Critical Reflection (CR): Q13–Q16

Full Item List: 1. I often do things without questioning them. 2. I follow procedures without really thinking about them. 3. I tend to act without thinking. 4. I operate on automatic pilot. 5. I like to understand the reasons for doing things. 6. I try to understand the concepts underlying what I learn. 7. I examine the logic of new information. 8. I seek to understand things thoroughly. 9. I reflect on my English learning strategies. 10. I consider the effectiveness of how I study English. 11. I think about what I have learned after class. 12. I analyze my learning errors and think about corrections. 13. I critically evaluate how I can improve my English. 14. I challenge previously held beliefs related to English learning. 15. I reconsider my assumptions when encountering new material. 16. I am open to changing my views on English learning.

#### Achievement Motivation Scale (AMS)

Based on Elliot and Church's (1997) model, the scale includes 12 items: - Mastery Goals: Q1–Q4 - Performance-Approach: Q5–Q8 - Performance-Avoidance: Q9–Q12 [11].

#### Full Item List:

I want to learn as much as possible from every English course.

I prefer challenging tasks that help me grow in English.

I try to constantly improve my English performance.

Mastering English skills is very important to me.

I strive to do better than others in English class.

Being one of the best in English is a goal for me.

I want others to recognize my English achievement.

I enjoy comparing my English performance with others.

I fear not doing well in English.

I feel anxious when English tasks are too hard.

I worry about making mistakes in English class.

12. I avoid situations where I might fail in English.

#### English Proficiency Score

The study uses participants' most recent CET-4 scores, composed of: - Listening Comprehension (248 points) - Reading Comprehension (248 points) - Writing (106 points) - Translation (106 points)

Scoring Range: Total = 710. The score reflects general English proficiency and will be used as the dependent variable in this study.

## 4. Hypotheses

### 4.1 Reflective thinking positively predicts English proficiency

This hypothesis is grounded in a robust body of literature that supports the positive relationship between metacognitive learning behaviors and academic performance. Reflective thinking enables learners to systematically plan, monitor, and evaluate their learning strategies. In language learning, these metacognitive behaviors translate into actions such as adjusting listening techniques, revising writing based on feedback, and self-assessing vocabulary retention. Research by Moon and Schraw & Dennison has highlighted how reflective students are more capable of adapting to new linguistic information, internalizing grammatical patterns, and identifying gaps in comprehension, all of which contribute to improved language proficiency[4-6] .

In practical terms, a student who regularly reflects on their language learning processes may identify ineffective methods (e.g., passive reading) and replace them with more effective ones (e.g., active summarization, use of spaced repetition). These learners also tend to seek clarification and adopt a growth-oriented mindset, which further propels language development. Hence, reflective thinking should be a significant positive predictor of English proficiency.

## 4.2 Achievement motivation moderates the relationship between reflective thinking and English proficiency

This hypothesis posits that the strength of the relationship between reflective thinking and English proficiency varies depending on the level of achievement motivation. Theoretical underpinnings for this hypothesis come from both expectancy-value theory [12] and self-regulated learning theory [10]. Both frameworks suggest that motivation serves as the fuel for cognitive engagement. While reflective thinking provides the cognitive tools for learning, achievement motivation provides the drive and persistence needed to implement those tools effectively [13].

In this context, students with high reflective thinking but low motivation may possess the skills to self-evaluate but lack the drive to act on insights. Conversely, students with both high reflective thinking and high achievement motivation are more likely to implement strategic adjustments, persist through difficulties, and capitalize on self-regulated learning opportunities. These students may, for example, reflect on their past CET-4 performance and then actively restructure their study plans to improve weaker areas.

Empirical research by Elliot & Church distinguishes between three motivational orientations: mastery goals, performance-approach, and performance-avoidance [11]. Each orientation differentially impacts how learners respond to reflective processes. For example, students driven by mastery goals are more likely to use reflection as a way to deepen understanding. Those with performance-approach goals may reflect strategically to outperform peers. In contrast, students high in performance-avoidance might engage in shallow reflection, or avoid it entirely to protect self-esteem.

As such, achievement motivation can shape whether and how reflective thinking is translated into tangible improvements in English proficiency. High achievement motivation is expected to amplify the effects of reflective thinking, whereas low motivation may diminish or nullify this relationship.

## 5. Data Analysis

### 5.1 Descriptive Statistics

Descriptive statistics were computed to summarize the central tendencies and dispersion of the three main variables: Reflective Thinking (RTQ), Achievement Motivation (AMS), and English Proficiency (CET-4 total score). Measures included means, standard deviations, skewness, and kurtosis to assess the distribution characteristics of each scale. Results in Table 1 indicated that the variables were approximately normally distributed, with skewness and kurtosis values within the acceptable range of  $\pm 1$ .

Table 1 Sample Descriptive Statistics

Variable	Mean	SD	Min	Max
Reflective Thinking	3.65	0.52	2.45	4.89
Achievement Motivation	3.87	0.48	2.66	4.92
English Proficiency	506.32	61.24	387	635

The reliability of the RTQ and AMS scales was assessed using Cronbach's alpha. For the RTQ, which contains 16 items measuring four subscales (Habitual Action, Understanding, Reflection, and Critical Reflection), the overall alpha was 0.84, indicating good internal consistency. Subscale alphas ranged from 0.78 to 0.87. The AMS, composed of 12 items across three dimensions (Mastery Goals, Performance-Approach, Performance-Avoidance), showed an overall Cronbach's alpha of 0.86, with subscale values above the 0.70 threshold, confirming the reliability of the

instrument.

## 5.2 Correlation Analysis

Pearson correlation coefficients were calculated to examine the bivariate relationships among the main variables shown in Table 2. Reflective Thinking was positively correlated with Achievement Motivation ( $r = 0.42$ ,  $p < .01$ ) and English Proficiency ( $r = 0.38$ ,  $p < .01$ ), suggesting that higher levels of reflective engagement are associated with both increased motivation and improved language performance. Similarly, Achievement Motivation demonstrated a moderate positive correlation with English Proficiency ( $r = 0.45$ ,  $p < .01$ ), supporting the premise that motivated learners perform better in language assessments. These correlations confirm linear relationships and set the stage for moderation analysis.

Table 2 Correlation Matrix

Variable	1	2	3
Reflective Thinking	1	0.42	0.38
Achievement Motivation	0.42	1	0.45
English Proficiency	0.38	0.45	1

## 5.3 Moderation Analysis

To investigate whether achievement motivation moderates the relationship between reflective thinking and English proficiency, a moderation analysis was conducted using the PROCESS macro (Model 1) for SPSS. This approach allows the estimation of interaction effects within a regression framework.

Step 1: Reflective Thinking was entered as the independent variable (X).

Step 2: Achievement Motivation was included as the moderator (M).

Step 3: An interaction term ( $X \times M$ ) was created by multiplying the centered scores of Reflective Thinking and Achievement Motivation.

Step 4: English Proficiency was the dependent variable (Y), and the model was tested for the significance of the interaction term and the change in R-squared ( $\Delta R^2$ ).

Table 3 Moderation Analysis

Variable	B	SE	t	p
Reflective Thinking (RTQ)	0.35	0.09	3.89	< .001
Achievement Motivation (AMS)	0.41	0.1	4.1	< .001
RTQ $\times$ AMS (Interaction Term)	0.27	0.08	3.38	< .01

The results shown in Table 3 indicated that the interaction term was statistically significant ( $\beta = 0.27$ ,  $p < .01$ ), and the inclusion of the moderator significantly improved the model's explanatory power, with  $\Delta R^2 = 0.06$  ( $p < .01$ ). This supports Hypothesis 2, suggesting that achievement motivation amplifies the positive effect of reflective thinking on English proficiency.

## 5.4 Simple Slope Analysis

To further interpret the interaction, a simple slope analysis was conducted at  $\pm 1$  standard deviation (SD) of achievement motivation. This procedure estimates the effect of reflective thinking on English proficiency for students with low ( $-1$  SD), average (mean), and high ( $+1$  SD) motivation.

At high levels of achievement motivation ( $+1$  SD), the slope was significantly positive ( $\beta = 0.51$ ,  $p < .001$ ).

At average levels, the slope remained positive and significant ( $\beta = 0.35$ ,  $p < .01$ ).

At low levels of motivation ( $-1$  SD), the slope was weak and not statistically significant ( $\beta = 0.12$ ,  $p = .14$ ).

These findings suggest that reflective thinking contributes more strongly to language proficiency when students are highly motivated. A visual plot of the interaction confirmed this moderating effect, with steeper slopes under higher levels of motivation.

## 5.5 Assumption Checks

To ensure the robustness of the regression analyses, several statistical assumptions were tested:

Normality: The Shapiro–Wilk test was applied to residuals, and histogram plots showed approximate normal distribution ( $p > .05$ ). Q-Q plots confirmed normality visually.

Linearity: Scatterplots and residual plots indicated a linear relationship between predictors and the dependent variable. No major curvilinear trends were observed.

Multicollinearity: Variance Inflation Factor (VIF) values for all predictors were below 2, indicating no multicollinearity concerns.

Homoscedasticity: The Breusch–Pagan test yielded a non-significant result ( $p > .05$ ), confirming the homogeneity of variance assumption.

Overall, the statistical assumptions for regression analysis were satisfactorily met, reinforcing the validity of the findings.

## 6. Conclusion

Results support both hypotheses. Reflective thinking significantly predicted English proficiency, suggesting that learners who engage in deeper metacognitive practices tend to achieve higher language outcomes. Furthermore, achievement motivation moderated this relationship: the association between reflective thinking and English proficiency was significantly stronger among students with high motivation levels.

These findings highlight the intertwined roles of cognition and motivation in EFL learning. Students with strong achievement goals appear more capable of transforming reflective awareness into actionable strategies. For educators, this underscores the importance of integrating reflective activities into English instruction while simultaneously fostering motivational environments.

Pedagogically, English curricula should include journal writing, peer review, goal tracking, and guided reflection. Simultaneously, motivational support through feedback, self-assessment, and achievement-based incentives can maximize learner outcomes.

Future research could apply longitudinal or experimental designs to examine causality and test intervention models that simultaneously target reflective thinking and achievement motivation.

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