

# The role of Academic Boredom in Affecting Chinese Secondary School Students EFL Proficiency: A Mediation analysis of Organizational Strategies

Yajun Wu<sup>1</sup> and Xia Kang<sup>2</sup>

<sup>1</sup>School of Humanities and Education

<sup>2</sup>School of Mathematics and Big Data

<sup>1,2</sup>Foshan University

Foshan City, Guangdong Province

China

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## ABSTRACT

*Drawing upon the control-value theory (CVT), various subject domains have explored the relationship and mediating mechanism between academic boredom and academic achievement. However, few studies have explored the potential mediating effect of cognitive strategies in the association between academic boredom and achievement, especially in the English as a foreign language (EFL) learning context. A sample of 524 Chinese secondary EFL learners from one middle school using convenience sampling participated in the study. Results of structural equation modelling (SEM) analyses and mediation analysis indicated that organizational strategies partially mediated the link between foreign language boredom (FLB) and foreign language proficiency (FLP). This research further revealed the mediating mechanism between FLB and FLP. Implications, shortcomings, and directions for future research are discussed.*

**Keywords:** Foreign Language Boredom, Organizational Strategies, Foreign Language Proficiency, *Mediating Mechanism*.

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## 1. INTRODUCTION

Academic boredom is one of the most commonly experienced emotions in learning English. Especially with the introduction of the control-value theory [1], the research was no longer limited to academic anxiety but explored a variety of achievement emotions (e.g., academic boredom). Drawing upon the control-value theory, many studies were conducted to explore the association and mediating mechanisms between academic boredom and academic achievement [2–4]. A meta-analysis by [3] focusing on the relationship between academic boredom and achievement found that academic boredom was negatively correlated with academic achievement ( $r = -0.24$ ). Moreover, academic engagement [4], boredom coping strategies [5], and motivation [6] were identified as the mediators between academic boredom and achievement.

However, there are two areas for improvement in the existing studies that need to be further explored. First, existing research on the association and mediating mechanisms between academic boredom and achievement was rarely carried out in the field of EFL education. [7] documented that achievement emotions are domain-specific, implying that research on achievement emotions should be conducted within a specific subject domain (e.g., EFL). Second, to our knowledge, few studies have been conducted to explore the potential mediating efforts of cognitive strategies in the relationship between academic boredom and achievement. Previous

studies confirmed that achievement emotions were significantly correlated with cognitive strategies [8], and using cognitive strategies would promote academic achievement [9]. That is, the potential mediating effects of cognitive strategies (e.g., organizational strategies) between FLB and FLP need to be verified. To fill these knowledge gaps, this research was designed to explore the mediating effects of organizational strategies in the association between FLB and FLP in a sample of 524 Chinese secondary EFL learners.

## **2. LITERATURE REVIEW**

### **2.1 Foreign Language Boredom**

General boredom is an aversive feeling commonly induced by the external environment that prevents an individual from engaging in a task and sustaining attention [10]. Given the domain-specificity of achievement emotions, research on boredom in education has received more attention [11,12]. In the educational field, academic boredom was defined as the feeling that had a direct effect on students' learning, classroom instruction and achievement [11]. In this research, we focused on foreign language boredom and defined it as the aversive feeling that might prevent an individual from engaging in learning English. Valance, activation, and the focus of the object are the three dimensions for describing achievement emotions [13]. Accordingly, foreign language boredom could be described as a negative, deactivating, activity-related emotion [14].

Given the common and destructive nature of academic boredom, the antecedents and effects of boredom have been widely explored [1,2,15]. For example, in a study with Italian primary school students, [2] documented that control and value appraisals were negatively associated with boredom, and boredom was negatively associated with multiple-text comprehension. In another study among Australian college students, [15] found that academic boredom mediated the association between control appraisals and academic performance. The negative effect of academic boredom on academic achievement has been unanimously recognized [2,15], and it was hypothesized that cognitive strategies might mediate the link between academic boredom and achievement [1]. However, studies have yet to be conducted to verify the potential mediating effect of cognitive strategies (e.g., organizational strategies) in the association between academic boredom and achievement, especially in the EFL learning context in China.

### **2.2 Organizational Strategies**

Organizational strategies refer to sorting out the new information learned and constructing its internal connections to improve the memory effect. As a type of in-depth information processing, organizational strategies were an effective way to improve learning efficiency in autonomous learning [16]. In the EFL learning context, we defined organizational strategies as constructing internal connections between new and existing English knowledge. Thus, it could be inferred that organizational strategies could facilitate students' memory and retrieval of new English knowledge.

The antecedents and consequences of organizational strategies were explored using a correlational design [17–19]. For example, in a path analysis of cognitive strategies and biological achievement among Turkish 9<sup>th</sup> and 10<sup>th</sup> graders, [19] found that only organizational strategies were significantly correlated with biological achievement. In another study with Chinese English majors, [20] found that both negative and positive emotions were significantly correlated with the use of language learning strategies. Based on the existing literature, organizational strategies might mediate the link between FLB and FLP.

### **2.3 Covariates**

In addition to achievement emotions and organizational strategies, previous studies have found that age and gender also have an effect on academic achievement [21,22]. For instance, Naderi et al. (2009) documented that gender and age would cause differences in academic achievement. Thus, age and gender need to be controlled as covariates while exploring the relationship between FLB, organizational strategies, and FLP.

### **2.4 The Present Study**

Based on the existing literature, the present study aimed to explore the following three hypotheses.

H1: EFL learners' FLB was negatively correlated with their FLP.

H2: EFL learners' FLB was negatively correlated with their use of organizational strategies in learning English.

H3: EFL learners' use of organizational strategies mediated the relationship between FLB and FLP after controlling for age and gender.

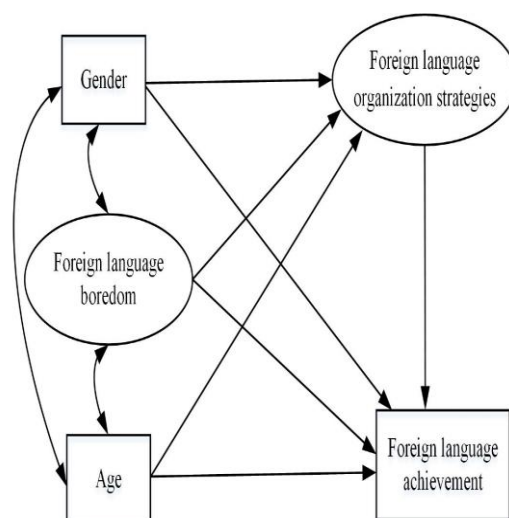


Figure 1. The Proposed Model

### 3. METHODOLOGY

#### 3.1 Participants

This research involved a convenience sample of 218 seventh- ( $N = 218$ , 41.6%) and eighth-graders ( $N = 306$ , 58.4%) from twelve classes in a secondary school in Southeastern China ( $M_{age} = 13.66$  years;  $SD = 0.62$ ). Of the five hundred and twenty-four participants, two hundred and seventy-six were male students (52.7%) and two hundred and forty-eight were female (47.3%). In terms of socioeconomic status, the participants were mainly from middle-class families. In addition, the teachers reported that the participants were all ordinary students with no cognitive or learning ability deficits.

#### 3.2 Procedure and Measures

##### 3.2.1 Procedure

The original English version scales were translated into Chinese and then back-translated into English to guarantee the face validity of the scales. Five-point Likert scale (ranging from “1” = strongly disagree, “3” = agree, “5” = strongly agree) was used to rate participants’ agreement with the related items. With the help of English teachers, the questionnaire survey was conducted in English class using the pencil-and-paper method. Before participating in the questionnaire survey, written informed consent from participants and verbal informed consent from their parents or legal guardians was obtained.

##### 3.2.3 Class-related Foreign Language Boredom Scale

The achievement emotions questionnaire (AEQ) [23] was designed to measure eight discrete emotions in three educational situations (i.e., class-related, learning-related, and test-related settings). This study adapted the five-item class-related academic boredom to measure participants’ foreign language boredom for the following two reasons. First, Chinese secondary EFL learners majorly learn English in a classroom context, and class-related achievement emotions (e.g., FLB) might generate a lasting and profound influence on their EFL learning outcomes. Second, achievement emotions are domain-specific[7], meaning that achievement emotions (e.g., academic boredom) should be explored in a specific subject domain (e.g., EFL). One example of the class-related FLB scale is “I get bored in learning English”. The validity and reliability of this scale have been confirmed in existing studies [24–26]. The reliability of this scale in this research was excellent, with Cronbach’s alpha = 0.89.

### 3.2.4 Organizational Strategies Scale

The five items adapted from the *goal orientation and learning strategies survey* [27] were used to measure participants' use of organizational strategies in learning EFL. Participants were required to rate their agreement with the five statements of the organizational strategies scale (e.g., "I use summaries to help me organize and learn English"). This scale demonstrated excellent reliability in this research (Cronbach's  $\alpha = 0.89$ ).

### 3.2.5 Foreign Language Proficiency

Improving FLP is one of the critical goals of foreign language education in the Chinese context. This research collected participants' English scores in the final course examination to represent their FLP. The English examination paper demonstrated good reliability, validity and discrimination because the Municipal Education Bureau set it according to the compulsory education English curriculum standards [28]. This research held that the higher the English score, the higher the FLP.

### 3.2.6 Controlled Variables

It was found that the gender variable [29] and age variable [30] played a role in students' EFL proficiency. Thus, gender and age were controlled as covariates when exploring the relationship between FLB, organizational strategies, and FLP.

## 3.3 Data Analysis

The data analysis of this research consisted of five steps. First, the effects of common method variance were detected because the data in this research were all self-reported by the participants. Second, descriptive statistics of the studied variables were calculated to provide preliminary information, which included mean, *SD*, skewness, kurtosis, Cronbach's  $\alpha$ , and factor loadings. Third, measurement models were evaluated by conducting confirmatory factor analysis (CFA). Fourth, the link between FLB, organizational strategies, and FLP were examined using structural equation modelling (SEM). Fifth, mediation analyses were conducted using the bootstrap method with 5000 resamples.

## 4. RESULTS

### 4.1 Common Method Bias

Before data analysis, Harman's single-factor test was performed to exclude the potential common method variance from self-reported data [31]. Results of Harman's single-factor model demonstrated a poor fit, with  $\chi^2(35) = 934.586$ ,  $p < 0.001$ , CFI = 0.692, TLI = 0.604, RMSEA = 0.222, 90% CI [0.210, 0.234], SRMR = 0.128. Zero was not contained in the bias-corrected confidence intervals (CIs), indicating that common method bias would not threaten the validity of subsequent data analysis.

### 4.2 Descriptive Statistics

This research adopted the standard proposed by [32]. The absolute values of skewness and kurtosis were less than 2, indicating that the studied variables had satisfactory normality for the maximum likelihood (ML) estimation. In addition to Cronbach's  $\alpha$  of the latent variables (i.e., FLB and organizational strategies), factor loadings of these two variables were consistently higher than 0.35 [33], showing that the convergent validity of these two variables was appropriate. The FLP was converted into standardized z-scores in the following analyses.

**Table 1 Descriptive Statistics for Studied Variables**

	Mean	SD	Skewness	Kurtosis	Cronbach's $\alpha$	Factor loadings
FLB	2.00	0.77	0.56	0.11	0.89	0.68-0.88
Organization strategies	2.88	0.58	-0.03	0.28	0.89	0.69-0.89
FLP	0.00	0.99	-0.84	-0.14	-	-

### 4.3 Measurement Models and Latent Bivariate Correlations

CFA of the measurement models and the latent bivariate correlations, and SEM analyses were conducted using *Mplus* 8.3 [34]. First, the fits of the measurement models (i.e., models with or without covariates and observation variable) were evaluated by adopting the cutoff criteria of CFI (comparative fit index)  $\geq 0.95$ , TLI (Tucker-Lewis index)  $\geq 0.90$ , RMSEA (root mean square error

of approximation)  $\leq 0.08$ , SRMR (standardized root mean square residual)  $\leq 0.08$  [35,36]. The measurement model without covariates and observation variable of FLP demonstrated an excellent fit to the data, with  $\chi^2(34) = 130.432$ ,  $p < 0.001$ , CFI = 0.967, TLI = 0.956, RMSEA = 0.074, 90% CI [0.061, 0.087], SRMR = 0.034. When covariates (i.e., gender and age) and observation variable (i.e., FLP) were added to the measurement model, the model demonstrated an excellent fit to the data, with  $\chi^2(58) = 174.590$ ,  $p < 0.001$ , CFI = 0.962, TLI = 0.949, RMSEA = 0.062, 90% CI [0.052, 0.073], SRMR = 0.032. These measurement models demonstrated good fit, showing that the data fit the hypothesized measurement model well.

**Table 2 Correlation Matrix of the Studied Variables**

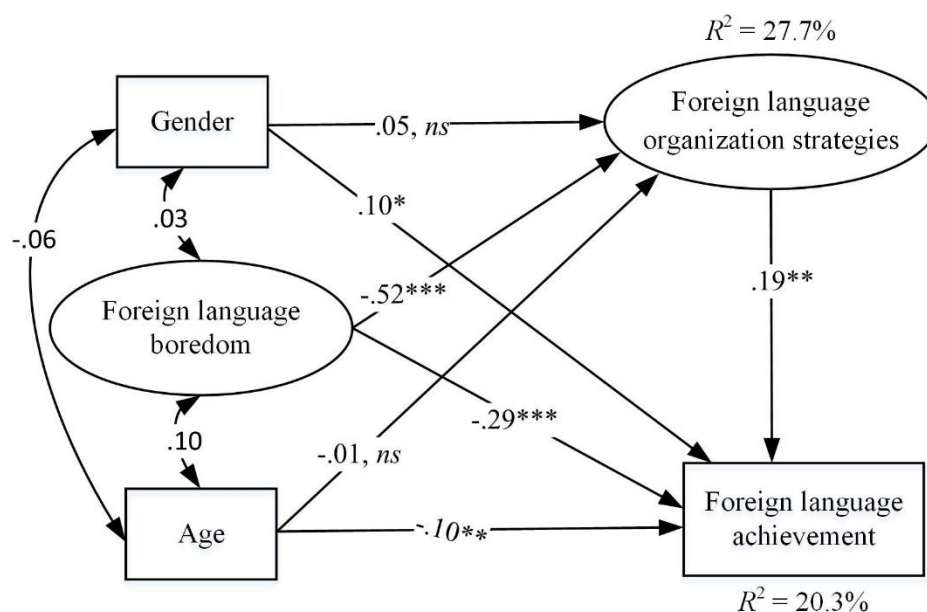
	1	2	3	4	5
1 FLB	-				
2 Organizational strategies	-0.53***	-			
3 FLP	-0.39***	0.35***	-		
4 Gender	-0.05	0.07	0.12**	-	
5 Age	-0.04	0.00	-0.10*	-0.06	-

\* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ .

The correlation matrix of the studied variables is presented in Table 2. It was found that FLB was negatively correlated with organizational strategies and FLP. Besides, a positive correlation between organizational strategies and FLP was also found. Moreover, gender was positively correlated with FLP, and age was negatively correlated with FLP.

#### 4.4 Structural Equation Modelling

SEM analyses were conducted to evaluate the proposed model. First, the proposed model (see Figure 1) fitted the data well, with  $\chi^2(60) = 176.396$ ,  $p < 0.001$ , CFI = 0.962, TLI = 0.951, RMSEA = 0.061, 90% CI [0.051, 0.071], SRMR = 0.035. As shown in Figure 2, standardized regression weights were presented in the model. Five findings were found in the SEM analyses. First, FLB was found to be negatively correlated with EFL-related organizational strategies ( $\beta = -0.52$ ,  $SE = 0.04$ ,  $p < 0.001$ ) and FLP ( $\beta = -0.29$ ,  $SE = 0.06$ ,  $p < 0.001$ ). Second, EFL-related organizational strategies positively predicted FLP ( $\beta = 0.19$ ,  $SE = 0.06$ ,  $p < 0.01$ ). Third, gender was positively correlated with FLP ( $\beta = 0.10$ ,  $SE = 0.04$ ,  $p < 0.05$ ), showing that female EFL learners were more proficient in English than male counterparts. Fourth, age was negatively correlated with FLP ( $\beta = -0.10$ ,  $SE = 0.04$ ,  $p < 0.01$ ), suggesting that English proficiency decreased with age in the secondary school phase. Fifth, FLB explained a 27.7% variance in EFL-related organizational strategies and a 20.3% variance in FLP.



**Figure 2. Structural Equation Model Testing the Link between FLB, Organizational Strategies, and FLP.** Note.

\*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$ .

Moreover, mediation analysis was conducted by the bootstrap method with 5000 resamples to explore the mediating effect of organizational strategies between FLB and FLP. If zero is not included in the 95% CIs, indicating that the mediating effect is significant. The direct and indirect effects between FLB and FLP are present in Table 3. First, the indirect effect ("FLB → Organizational strategies → FLP") was significant for 95% CIs [-0.17, -0.05] did not contain zero, suggesting that organizational strategies mediated the association between FLB and FLP. Second, FLB had a significant direct effect on FLP (95% CIs [-0.40, -0.17]), suggesting that organizational strategies partially mediated the relationship between FLB and FLP.

**Table 3 Results of mediation analysis**

Model path	Effect	SE	Bias-corrected CIs 95%	
			Lower	Upper
Total effect	-0.39	0.05	-0.48	-0.30
Indirect effect:				
FLB → Organizational strategies → FLP	-0.10	0.03	-0.17	-0.05
Direct effect	-0.29	0.06	-0.40	-0.17

## 5. DISCUSSION

The associations between achievement emotions and cognitive strategies and between cognitive strategies and academic achievement have been extensively explored [8, 9]. However, few studies have been conducted to explore the potential mediating role of cognitive strategies in the link between achievement emotions and academic achievement. The present study adopted a domain-specific approach and focused on academic boredom, organizational strategies, and academic achievement variables in the Chinese EFL context. Specifically, this research explored the relationship between FLB, EFL-related organizational strategies, and FLP in a sample of 524 Chinese secondary school students.



It was found that FLB was negatively correlated with FLP, indicating that  $H_1$  was supported. In line with the theoretical hypothesis of the control-value theory [1], negative achievement emotions would affect academic achievement adversely. The present study contributes to the literature by providing empirical evidence for the control-value theory, showing that the control-value theory is established in the Chinese EFL context. Moreover, this finding is consistent with the prior studies [4,37]. However, the existing relevant research did not concentrate on EFL education, nor did they pay attention to Chinese secondary EFL learners. In addition, some existing studies have concluded that the impact of academic boredom on school outcomes is not necessarily negative [38, 39]. This study explored the association between FLB and FLP in a sample of Chinese secondary EFL learners, which makes up for the shortcomings of existing research.

This study also found that FLB negatively influences the use of organizational strategies in learning English, showing that  $H_2$  was supported. Both achievement emotions and cognitive strategies are critical factors affecting learning outcomes [40,41]. The control-value theory postulated that negative achievement emotions had an adverse effect on the use of cognitive strategies [1,11]. However, empirical evidence on the correlation between achievement emotions and cognitive strategies was relatively limited. The present study explored the association between FLB and organizational strategies, providing empirical evidence for the control-value theory. Furthermore, the present study explored the association between achievement emotions (i.e., FLB) and cognitive strategies (i.e., organizational strategies), which might deepen the research on achievement emotions and cognitive strategies.

This research also found that organizational strategies partially mediated the link between FLB and FLP after controlling for gender and age, showing that  $H_3$  was supported. Existing studies confirmed that behavioural engagement [4,42], epistemic curiosity [5], and motivation [6] mediated the relationship between academic boredom and achievement. The present study identified that organizational strategies, as a type of cognitive strategies, mediated the link between FLB and FLP, which advances the understanding of the mediating mechanisms between academic boredom and achievement.

The present study has three limitations. First, only FLB and organizational strategies were examined. In addition to academic boredom, enjoyment, pride, hope, hopelessness, anxiety, shame, and anger are commonly experienced achievement emotions in learning settings [11]. According to the cognitive strategy model proposed by Weinstein and Mayer (1986), rehearsal, elaboration, and organization strategies are the three components of cognitive strategies. Thus, future studies are suggested to take more discrete emotions and more components of cognitive strategies into account to give a more comprehensive picture of the association between achievement emotions, cognitive strategies, and academic achievement. Second, the cross-sectional design of the present study prevents us from drawing causal relationships between FLB, elaboration strategies, and FLP. A longitudinal design is recommended to identify the causal relationships between the three constructs. Third, the data of the present study were self-reported. Although common method variance was excluded, future studies are suggested to enrich sources of data collection (e.g., collecting relevant data from teachers or peers) to enhance the objective nature of data.

Despite the above deficiencies, the present study still has theoretical and practical implications. Theoretically, this research provides empirical evidence for the control-value theory, namely, negative achievement emotions (i.e., FLB) could affect academic achievement (i.e., FLP) directly and indirectly via cognitive strategies (i.e., organizational strategies). Practically, the negative correlations between FLB and the use of organizational strategies and between FLB and FLP suggest that foreign language educators take measures (e.g., cultivating a harmonious teacher-student relationship and designing learning tasks with moderate difficulty) to reduce EFL learners' levels of boredom[44,45].

## **6. CONCLUSION**

This research identified that FLB was negatively correlated with the use of organizational strategies and FLP. Moreover, the partial mediating effect of organizational strategies between FLB and FLP was also confirmed. This research contributes to the literature in two ways. First, the mediating mechanism explored in this research further reveals the complex relationship between FLB and FLP. Second, this research illustrated the direction and strength of the mediating effect of organizational strategies between FLB and FLP, which provides empirical basis for foreign language educators to take targeted measures.

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