

## The impact of family income and household resources on secondary students' English achievement: A mediation analysis of educational resource access

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**Abstract:** This study examines how family capital influences middle school students' foreign language achievement amidst urban-rural educational stratification in Central China. Utilizing survey data from 465 eighth-grade students in Jiangxi Province, the study conducts empirical tests through structural equation modeling (SEM) and Bootstrap procedures. Path and mediation analyses indicate that both fluid family income and fixed family resources exert a fully mediated influence on English academic performance. This effect is indirectly realized as a marginal academic dividend solely through the institutional bridge of Educational Resource Access (ERA). Crucially, after controlling for equal resource access, family income exhibits a significant inhibitory effect on English grades. This negative impact reflects the capital anxiety and financial misallocation experienced by high-income families under China's "Double Reduction" policy. Ultimately, this study enriches empirical evidence for capital reproduction theory within language acquisition and offers policy insights to interrupt the transmission of family socioeconomic background into micro-level academic disparities.

**Keywords:** Educational resource access, Family income, Household resources, Students' English achievement.

### 1. Introduction

#### 1.1. Research Context

Socioeconomic disparities remain a primary determinant of educational outcomes in contemporary China. While the country's rapid economic expansion has reshaped its educational landscape, it has also widened the developmental gap between urban centers and rural or marginalized areas, a divide further institutionalized by the structural constraints of the hukou system [1, 2]. In secondary education, this stratification directly affects subject-specific performance, particularly in English language learning. Because English proficiency is tied to labor-market returns and higher-education opportunities in a globalized economy, its acquisition requires significant financial commitment. Affluent parents frequently leverage their economic advantages to secure private tutoring, digital learning software, and immersive language environments for their children [3]. In contrast, students from low-income families face systemic barriers, creating a substantial achievement gap that reflects broader patterns of social reproduction.

Despite central government initiatives to promote equity through school digitalization and targeted funding for underdeveloped regions, the distribution of actual learning capital remains highly uneven [4]. This divergence suggests that the relationship between family background and test performance is not entirely direct; rather, it operates through differential access to educational resources. Wealthier schools and high-income households are better positioned to adopt modern pedagogical tools and interactive learning materials, whereas underfunded institutions continue to struggle with teacher shortages and outdated facilities [5]. Consequently, material inputs like family income and household

resources dictate the quantity and quality of learning support a student receives. To understand these dynamics, empirical research must look into the specific channels through which economic privilege is converted into language proficiency. This study addresses this need by conducting a mediation analysis to examine how access to educational resources links family-level economic factors to the English test scores of Chinese secondary students.

### *1.2. Problems in Students' English Achievement*

Despite the growing body of literature examining macro-level predictors of academic performance, a critical research gap remains regarding the precise micro-structural mechanisms through which distinct familial investments translate into subject-specific outcomes, particularly in secondary English Language Learning [6]. Current empirical evaluations heavily rely on composite or generalized academic scores, which fundamentally obscure the unique "linguistic capital" value of English proficiency. In a globalized economic landscape, English mastery functions as a high-premium mechanism for upward mobility and subsequent labor market returns rather than a mere localized cognitive output. By aggregating academic success under broad educational metrics, existing studies fail to capture how foreign language acquisition is uniquely vulnerable to specific granular forms of household deprivation, thereby impeding the development of targeted, discipline-specific educational interventions.

More importantly, the structural transmission channels dividing the effects of liquid financial capital (Family Income) and fixed physical/cultural capital (Household Resources) on linguistic achievement remain largely trapped in an empirical "black box." While institutional frameworks suggest that financial assets and material household environments operate through distinct investment pathways, there is a profound scarcity of structural equation modeling (SEM) that explicitly quantifies the mediating mechanism of "Educational Resource Access." This theoretical opacity is highly problematic in the context of central China, specifically Nanchang City and its surrounding peri-urban and rural counties, where sharp urban-rural dualism polarizes the spatial distribution of advanced pedagogical infrastructure, native-speaker exposure, and digital learning platforms. Without isolating and testing "resource access" as a distinct structural mediator, researchers cannot statistically discern whether the prevailing English achievement gap is driven by a private economic dividend within the household or by systemic institutional inequalities in resource distribution [5].

Finally, conventional path-analytic models in education stratification frequently omit student-level non-cognitive covariates, leading to severe endogeneity and parameter estimation bias. Language acquisition is a prolonged, high-commitment process wherein individual learning motivation and cross-situational learning strategies serve as powerful micro-level predictors of standardized test performance. When previous research fails to statistically control for these intrinsic, student-level confounding variables within structural networks, the direct effects of both family income and household resources on English achievement are highly susceptible to artificial inflation or systemic overestimation. Consequently, the true causal weight of external socioeconomic constraints versus internal psychological agency remains unverified.

To address these empirical limitations, this study provides a localized, rigorous conditional process analysis within Jiangxi Province. The overarching objective is to deconstruct how distinct forms of familial capital are converted into English proficiency, identifying the specific institutional and resource pathways that sustain language achievement disparities under the structural shifts of the "Double Reduction" policy. By integrating "Educational Resource Access" as a pivotal mediator while controlling for individual motivational and strategic covariates, this research aims to offer empirical clarity for precise resource allocation, thereby advancing educational equity in a profoundly stratified learning ecology.

## 2. Literature Review

### 2.1. Theoretical Justification

This study employs a complementary framework combining human capital theory [7] and cultural capital theory [8] to examine the structural mechanisms linking family-level economic status to academic achievement in specific subjects. Human capital theory posits that families view educational expenditures as a strategic investment aimed at maximizing future returns in the labor market. In contemporary China, English proficiency has become a key asset for social mobility; consequently, material resources directly determine a family's ability to bear the high costs of quality language instruction. However, a purely economic reductionist approach fails to account for the non-material social assets that translate financial investment into actual test scores. Bourdieu's theory of cultural capital addresses this limitation by elucidating how family resources foster a localized inclination toward language [8]. In short, while human capital theory establishes the economic baseline required for access to educational opportunities, cultural capital theory clarifies how the early socialization of affluent families endows students with the cognitive familiarity necessary for mastering a foreign language.

Traditional stratification models typically assume that wealth can be converted into academic achievement without friction, yet they overlook the critical mediating role of local resource infrastructure. In regions facing severe geographic inequality, the conversion of household income and resources into English proficiency is inevitably constrained by the availability of institutional and supplementary learning capital [5]. Material wealth alone does not automatically generate language proficiency unless it is first transformed into tangible educational resources, including high-quality teaching staff, digital learning tools, and organized extracurricular programs. Therefore, evaluating only the direct relationship between socioeconomic status and academic performance without explicitly measuring the mediating pathways of educational resource access when constructing structural models would result in significant empirical omissions. By dialectically integrating these theories into a mediation framework, this study transcends static stratification assumptions, thereby accurately capturing the microstructural channels through which economic capital is transformed into measurable language achievement.

## 3. Research Hypotheses

### 3.1. The Impact of Family Income on English Academic Performance

Family economic capital is the primary predictor of students' standardized test scores [9]. In high-stakes, selective examinations such as China's Gaokao and Zhongkao, English, due to its highly capital-intensive nature, exhibits a strong linear correlation between academic performance and family income [10]. High-income families can reap the benefits of a language-rich environment through long-term, direct financial investment. In contrast, low- and middle-income families rely entirely on the standardized basic education provided by the public education system, and their children exhibit significant structural disadvantages when facing high-difficulty or applied language tests [11]. Based on this, this study proposes the following hypotheses:

*H<sub>1</sub>: Family income has a significant positive direct effect on secondary students' English language learning achievement.*

### 3.2. The Impact of Family Resources on English Learning Outcomes

In addition to direct financial purchasing power, non-financial class assets, comprising the material environment within the home, also serve as key catalysts for language acquisition [8]. Empirical evidence suggests that families with high socioeconomic status are able to create an English-rich early home environment for children, which, supported by physical collections of books and technological devices, is spontaneously internalized into students' cognitive familiarity and linguistic habits. In low-SES households, the cramped physical space and scarcity of cultural [12] resources not only limit students' language exposure outside of school but also often inhibit their cognitive development through environmental stressors [13]. This inequality, stemming from micro-spaces and material

resources, is particularly evident in foreign language learning, which emphasizes independent input outside of school. Based on this, this study proposes the following hypotheses:

*H<sub>2</sub>: Household resources have a significant positive direct effect on secondary students' English language learning achievement.*

### *3.3. The Impact of Household Income on Access to Educational Resources*

The liquidity of capital determines the extent to which household income can be efficiently converted into high-quality educational capital outside the formal system or at higher levels. Chan et al. [13] point out that the high-income class's monopoly on high-quality educational resources is not limited to macro-level school choice but is also reflected in their active participation in commercialized advanced language courses. In contrast, low-income families, constrained by meager disposable income, are excluded from these high-return out-of-school offerings and are forced to endure the drawbacks of public education, such as oversized class sizes and outdated curricula, resulting from localized shortages of public educational resources. This resource-access gap, driven by financial capacity, directly widens the capital disparity between different socioeconomic groups at the starting point of education. Based on this, this study proposes the following hypothesis:

*H<sub>3</sub>: Family income significantly and positively predicts students' access to educational resources.*

### *3.4. The Impact of Family Resources on Access to Educational Resources*

The level of a family's material resources profoundly influences students' ability to effectively utilize external institutional and digital educational resources. Lei and Medwell [14] note that while the large-scale rollout of online digital teaching platforms, such as the National Smart Education Platform, appears to lower the physical barriers to accessing educational resources, it actually imposes higher implicit demands on families' "digital capital reserves." High-SES families with advanced electronic devices, stable broadband internet, and a conducive digital reading environment can access and effectively utilize various high-quality online English learning software without hindrance [15]. However, in vast rural areas and low-income households, the lack of suitable hardware devices or the presence of network dead zones means that disparities in digital infrastructure directly lead to secondary inequalities [16]. These differences in micro-level technological resources ultimately manifest as a physical divide that hinders lower-income students' access to high-quality supplementary educational resources. Based on this, this study proposes the following hypothesis:

*H<sub>4</sub>: Household resources significantly and positively predict students' access to educational resources.*

### *3.5. The Impact of Access to Educational Resources on English Learning Outcomes*

In the cumulative process of language acquisition, the quality and quantity of external educational resources are decisive factors that directly determine final performance outcomes [17]. Attending well-funded public schools with strong teaching staff provides a steady stream of high-quality language input and scientifically grounded instructional guidance. The combined provision of these high-quality resources significantly enhances students' test-taking skills and comprehensive language proficiency [5]. Conversely, when students are confined to under-resourced or rural schools with scarce teaching staff and outdated facilities, their performance in standardized assessments inevitably suffers a systemic decline due to a prolonged lack of standardized pronunciation correction, interactive opportunities, and support from modern teaching tools. Based on this, this study proposes the following hypothesis:

*H<sub>5</sub>: Access to educational resources has a significant positive direct effect on students' English language learning achievement.*

### *3.6. The Mediating Role of Access to Educational Resources in the Relationship Between Family Income and Academic Performance*

The erosion of English academic performance by family income is not a purely direct or isolated economic phenomenon [12]. High household income must first be converted through "purchasing

behavior” into specific high-quality teaching resources, small-class instruction, and international learning programs available on the market before it can ultimately influence an individual’s cognitive structure and manifest as outstanding test scores. Once psychological confounders, such as individual “learning motivation” and “learning strategies,” are controlled for, the institutionalized transmission characteristics of this mediating pathway become more pronounced. In other words, the academic failure of low-income students is fundamentally due to systemic institutional exclusion at the resource allocation stage resulting from their families’ lack of financial capacity. Based on this, this study proposes the following hypothesis:

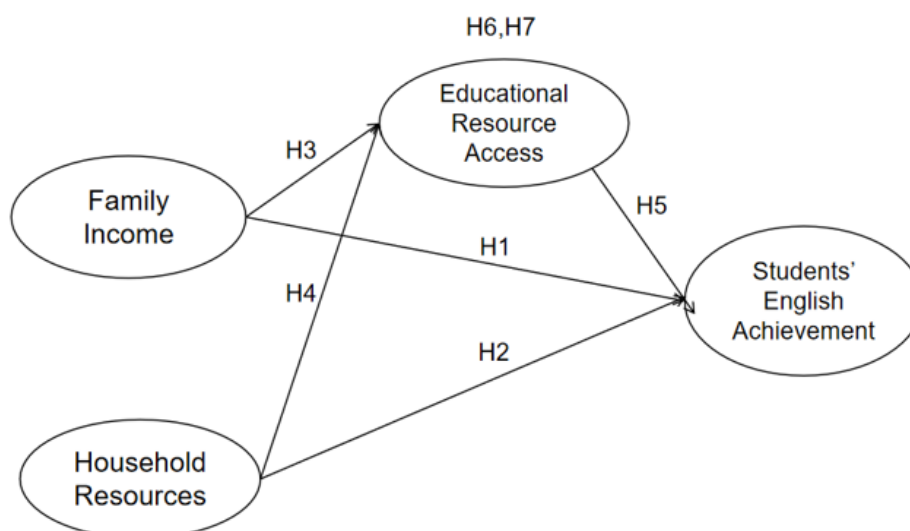
*H<sub>6</sub>: Access to educational resources significantly mediates the relationship between family income and secondary students’ English language learning achievement, holding individual-level learning motivation and strategies constant.*

### 3.7. The Mediating Role of Access to Educational Resources in the Relationship Between Family Resources and Academic Achievement

Similarly, disparities in material resources within families facilitate the covert reproduction of cultural privilege through the critical channel of access to external resources [8]. According to cultural capital theory, the accumulation of material wealth within the family during early childhood not only provides direct cognitive support but also serves as a structural springboard, endowing students with higher information literacy and class confidence. This, in turn, helps them more efficiently identify, access, and absorb elite educational resources both within and outside the school [18]. This advantage in accessing external resources, when individual micro-level differences such as motivation and strategy are controlled for, clearly demonstrates how social class, through the mediation of material resources, legitimately transforms its physical advantages into institutionally recognized linguistic achievements [3]. This mechanism profoundly reveals how a lack of micro-level material resources gradually crystallizes into an insurmountable achievement gap through the chain of resource deprivation. Based on this, this study proposes the following hypothesis:

*H<sub>7</sub>: Access to educational resources significantly mediates the relationship between household resources and secondary students’ English language learning achievement, holding individual-level learning motivation and strategies constant.*

Based on the above theories and assumptions, this study proposes the following (Figure 1) conceptual framework:



**Figure 1.**  
Conceptual framework.

## 4. Method

### 4.1. Research Design

This study employs a quantitative cross-sectional correlational research design and utilizes structural equation modeling (SEM) to deconstruct the structural hierarchical mechanisms underlying junior high school students' English academic achievement. In the overall structural model, household income and family resources are set as independent variables, with access to educational resources serving as the core mediating variable. This study eschews qualitative narrative methods, which do not allow for causal inference, in favor of econometric and empirical educational modeling, which offer strong statistical power.

### 4.2. Participants and Sampling

The target population for this study consists of second-year (eighth-grade) students currently enrolled in public junior high schools in Nanchang City and its subordinate counties and districts in Jiangxi Province, China. This region exhibits a distinct urban-rural dichotomy in educational resources that is highly relevant for analysis. This study specifically selected eighth-grade students as the target group because they have developed stable self-assessment abilities in language and academic performance and possess standardized end-of-term examination records. Additionally, this approach effectively avoids the confounding interference of high-stakes examination anxiety associated with the ninth-grade high school entrance exams on statistical variance. The sampling procedure employed a multistage stratified cluster sampling strategy, with cross-stratification based on geographic location (urban, county towns, rural townships) and school classification (provincial key, municipal key, and general public schools). Ultimately, 465 questionnaires were collected for data analysis.

### 4.3. Research Instruments

Research data were collected via a self-administered structured questionnaire comprising 22 items. All measurement instruments were adapted from internationally recognized sources in Table 1, well-established psychometric scales, and underwent bidirectional translation and contextualization tailored to the Chinese context. In addition to basic demographic variables, household income, family resources, access to educational resources, and students' English achievement were all measured using a standard 5-point Likert self-report scale (1 = Strongly Disagree, 5 = Strongly Agree).

**Table 1.**  
Measurement Items.

Construct	Measurement Items	Adaptation Source
Family Income (FI)	My family has sufficient financial capacity to support all my school-related and extra-curricular English learning expenses.	Acton, et al. [19]
	Compared to most households, my parents can easily afford premium educational software, applications, or books for my English studies.	
	Temporary economic fluctuations do not affect my parents' continuous financial investment in my English language education.	
	My family has the financial flexibility to purchase additional independent English learning materials whenever I need them.	
Educational Resource Access (ERA)	I have a quiet, dedicated study space and an independent desk at home exclusively for my schoolwork.	Acton, et al. [19]
	My home is equipped with well-functioning digital hardware	
	There is a reliable, high-speed internet connection at my home to support my online English reading and multimedia practices.	
	My home possesses an abundant collection of non-textbook English reference books, dictionaries, and graded readers.	
Educational Resource Access (ERA)	My school provides us with high-quality English teachers who often use advanced teaching methodologies and diverse activities.	Pierce and Cleary [20]
	The classrooms or language labs in my school are equipped with modern multimedia	

Construct	Measurement Items	Adaptation Source
	systems to enhance our English listening and speaking skills.	
	I can easily access and utilize public or official digital learning resources (e.g., the National Smart Education Platform) outside of school hours.	
	My school and community offer adequate free English learning support channels, such as after-school English clubs or targeted remedial tutoring.	
English Achievement (EA)	In the citywide unified English examinations, my overall test score consistently ranks in the upper tier among my peers.	Miley and Farmer [21]
	I can confidently comprehend standard English audio materials, and I am capable of expressing my ideas fluently in English conversations.	
	I can accurately read and understand English texts appropriate for my grade level without excessive reliance on a dictionary.	
	I possess the ability to write grammatically correct, coherent short essays or compositions on specified topics in English.	

#### 4.4. Data Collection Procedure

Before the formal survey, this study underwent institutional review by an ethics committee and obtained written permission from the administration of the target schools. Subsequently, the research team distributed and collected electronic informed consent forms from parents through the students' homeroom teachers. The actual survey was completed within a 3- to 4-week timeframe.

#### 4.5. Data Analysis

After cleaning and pre-coding the raw data, it was imported into SPSS 26.0 and Amos 26.0 software. SPSS was used to analyze sample demographic characteristics and perform descriptive statistics, as well as to calculate Cronbach's alpha coefficients and KMO values. Amos was then used to test the measurement model, calculate composite reliability (CR), and average variance extracted (AVE). After ensuring the reliability of the measurement model, the structural model was tested, and hypotheses were tested using path analysis and bootstrapping methods.

## 5. Result

### 5.1. Demographic Characteristics Analyze

The demographic and institutional characteristics of the study sample align with the educational stratification patterns observed in Nanchang City and its surrounding counties and districts in Jiangxi Province. As shown in Table 2, in terms of school structure and geographic distribution, the sample accurately reflects the dual polarization of educational resources between urban and rural areas in the central region: more than half of the students (54.1%) attend regular secondary schools, while municipal-level key schools (31.8%) and provincial-level key schools (14.1%) constitute the top tier. In terms of spatial distribution, 35.3% of the sample is concentrated in the central urban area of Nanchang, but a vast majority, 64.7%, of students are widely distributed across the suburbs, county towns, and remote rural townships. This significant spatial and institutional stratification, coupled with a relatively balanced household registration ratio (51.8% rural vs. 48.2% urban), provides a robust sample foundation with substantial statistical variance and practical deconstruction value for subsequent structural equation modeling and in-depth testing of the mediating effects of educational resource access in blocking or transmitting family economic dividends.

On the other hand, the individual characteristics of the students in the sample provide rigorous control for confounding factors in empirical modeling. In terms of family structure, as many as 80.0% of the students are only children. This implies that, within the context of the current study, financial capital and non-financial fixed assets within the family can be highly concentrated on a single child, greatly enhancing the measurement precision of capital conversion pathways. Additionally, the sample exhibits a balanced gender distribution (51.8% male, 48.2% female), with ages highly concentrated in the core group of 13- to 16-year-old eighth-grade students. The selection of this specific grade level is

methodologically crucial, as this group possesses a mature sense of subjective linguistic efficacy while effectively avoiding the severe interference of cognitive and psychological variables caused by the high-pressure environment of the high school entrance exam in the ninth grade. This ensures that this study possesses high internal validity and empirical persuasiveness when examining how family investment is transformed into English language capital.

**Table 2.**  
Demographic Characteristics of the Sample.

Variable	Category	Frequency (f)	Percentage (%)
Gender	Male	241	51.8
	Female	224	48.2
Age	13	164	35.3
	14	66	14.1
	15	93	20.0
	16	104	22.4
	17	38	8.2
Only Child Status	yes	372	80.0
	no	93	20.0
Household Type	Urban Household Registration	224	48.2
	Rural Household Registration	241	51.8
School Type	Provincial Key Secondary School	66	14.1
	Municipal Key Secondary School	148	31.8
	General Secondary School	251	54.1
School Location	Central Urban Area of Nanchang	164	35.3
	Suburbs or Near Suburbs of Nanchang	93	20.0
	Urban Area of County Town	93	20.0
	Township or Rural Area	115	24.7

### 5.2. Reliability Analysis of Measurement Scales

The statistical results (Table 3) indicate that the alpha coefficients for the four core latent variables included in this study all fall within the high range of 0.812 to 0.844, and the total-scale alpha coefficient for the questionnaire, comprising all 16 observed items, reaches as high as 0.868. These data strongly demonstrate that the localized measurement indicators, adapted and refined from established international literature, exhibit extremely low measurement error and excellent internal consistency when applied to a sample of junior high school students in Nanchang, Jiangxi Province. This fully meets the empirical rigor required for subsequent path analysis of higher-order structural equation models and tests of full mediation effects.

**Table 3.**  
Reliability Statistics for Latent Constructs and Overall Instrument.

Latent Construct	Number of Items	Cronbach's Alpha ( $\alpha$ )
Family Income (FI)	4	0.844
Household Resources (HR)	4	0.836
Educational Resource Access (ERA)	4	0.812
Student English Achievement (SEA)	4	0.843
Overall Questionnaire Instrument	16	0.868

### 5.3. Construct Validity and Factor Analysis

To establish the construct validity of the measurement instrument, this study conducted partial correlation and matrix independence analyses on the collected empirical data. As shown in Table 4, the KMO measure of sampling adequacy reached 0.877, far exceeding the academic passing threshold of 0.700 and approaching the excellence standard of 0.900, indicating a very high degree of overlapping variance and information sharing among the observed variables. Meanwhile, the approximate chi-square value of Bartlett's sphericity test was 3,215.702 (with 120 degrees of freedom), and its corresponding p-

value was exactly 0.000, rejecting the null hypothesis of independence, that the correlation matrix is the identity matrix, at a highly significant level. This result strongly demonstrates that the 16 measurement indicators designed in this study, covering family background, access to resources, and English proficiency, do not exist in isolation but are linked by significant structural causal relationships.

**Table 4.**  
KMO and Bartlett's Test of Sphericity.

<b>KMO and Bartlett's Test</b>		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.877
Bartlett's Test of Sphericity	Approx. Chi-Square	3215.702
	df	120
	Sig.	0.000

#### 5.4. Evaluation of Construct and Discriminant Validity

The results of the model fit (Figure 2) analysis indicate that the chi-square-to-degrees-of-freedom ratio is well below the internationally recognized ideal upper limit of 3.00 [22], suggesting that the model is not affected by overfitting or sample-size bias. In terms of absolute-fit indices, the Root Mean Square Error of Approximation (RMSEA) was exactly 0.033, well below the strict cutoff of 0.050. At the same time, both comparative and information indices demonstrated high levels of structural convergence: the Goodness-of-Fit Index (GFI = 0.960), the Adjusted Goodness-of-Fit Index (AGFI = 0.944), and the Normed Fit Index (NFI = 0.955) all consistently and significantly exceeded the empirical threshold of 0.900. The four-factor observational framework designed in this study demonstrates excellent fit and explanatory power with the 465 first-hand empirical data points collected, laying an impeccable statistical foundation for subsequent structural-path modeling and tests of full-mediation effects.

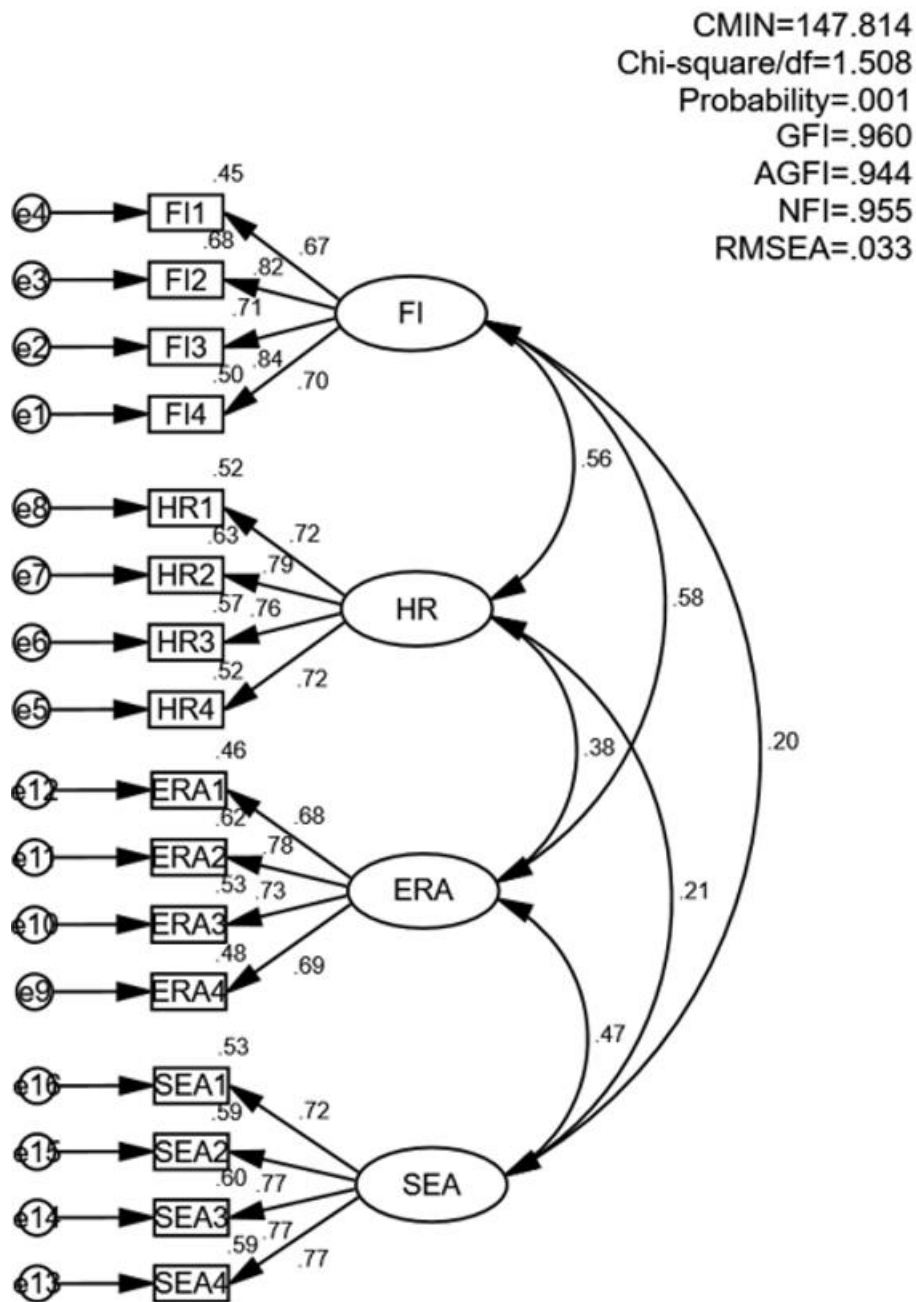


Figure 2. Measurement Model.

This study conducted an empirical examination of the model’s convergent validity by calculating composite reliability (CR) and average variance extracted (AVE). Based on the empirical thresholds established by Hair et al. [22], when the CR value of a latent variable exceeds 0.700 and the AVE value exceeds 0.500, it can be established that the observed indicators capture the latent construct with sufficient precision. Statistical results (Table 5) indicate that the CR values for the four latent variables, family income (FI), family resources (HR), access to educational resources (ERA), and student English academic achievement (SEA), range from 0.813 to 0.847, all consistently exceeding the 0.700 threshold;

simultaneously, the AVE values for each construct fall within the safe range of 0.522 to 0.583, meaning that, even after accounting for measurement error, each latent variable can still explain more than 50% of the variance in its observed items.

**Table 5.**  
Results of Convergent Validity Testing for Latent Constructs.

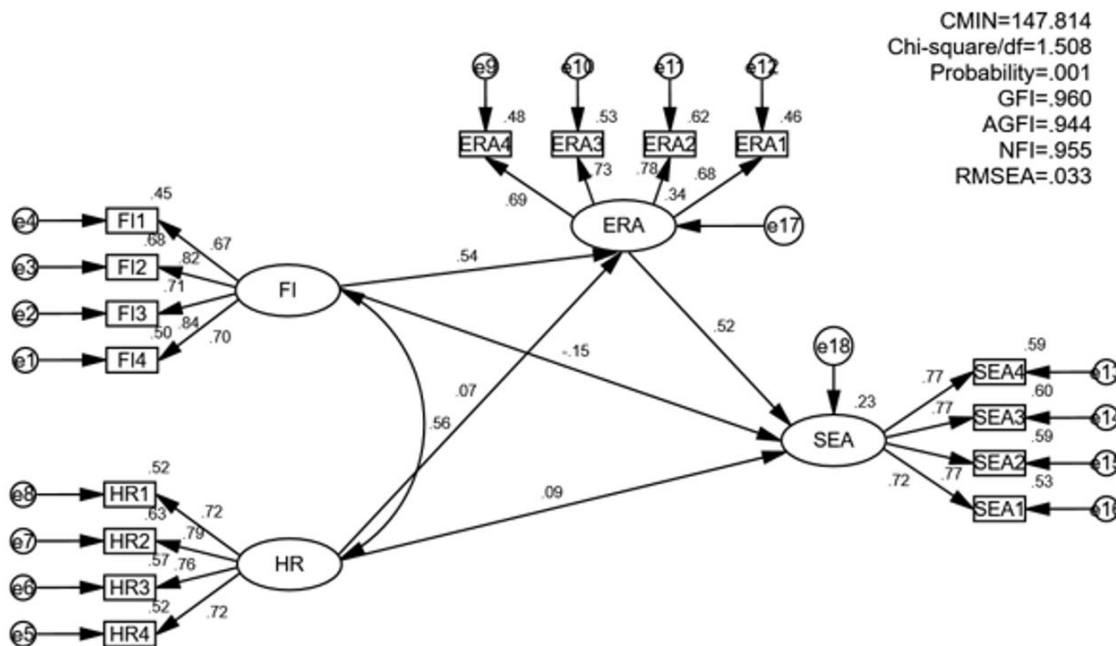
Variables	AVE	CR
FI	0.583	0.847
HR	0.563	0.837
ERA	0.522	0.813
SEA	0.575	0.844

This study screened the discriminant validity of the multiple factors based on the criteria proposed by Fornell and Larcker [23]. As shown in Table 6, the comparative analysis indicates that the AVE values for SEA (0.758), ERA (0.722), HR (0.750), and FI (0.764) all significantly exceeded their respective horizontal and vertical correlation coefficients. This robust distribution of bias confirms that the four multidimensional variables are not homogeneous concepts; the model successfully eliminates potential multicollinearity contamination, providing a solid foundation for subsequent structural path analysis and mediation effect estimation.

**Table 6.**  
Discriminant Validity Assessment via Fornell-Larcker Criterion.

	SEA	ERA	HR	FI
SEA	0.758			
ERA	0.468	0.722		
HR	0.206	0.377	0.750	
FI	0.204	0.583	0.558	0.764

5.5. Structure Model



**Figure 3.**  
Structure Model.

As shown in Table 7, this study performed parameter estimation and hypothesis testing on the model's structural paths using the maximum likelihood (ML) estimation method. In terms of the transmission chain of resource allocation, family income (FI) has a significant positive predictive effect on educational resource access (ERA) ( $\beta = 0.541$ , C.R. = 7.496,  $p < 0.001$ ); simultaneously, educational resource acquisition (ERA) exhibits a robust positive driving effect on students' final English academic achievement (SEA) ( $\beta = 0.522$ , C.R. = 6.804,  $p < 0.001$ ). The statistical significance of these two direct paths preliminarily establishes the structural transmission pathway of "family financial capital, external resource conversion, micro-level academic outcomes." In contrast, family resources (HR), as a form of non-financial capital, did not reach statistical significance in either its direct effect on educational resource acquisition ( $\beta_{std} = 0.075$ ,  $p = 0.234$ ) or its direct effect on English academic achievement ( $\beta = 0.095$ ,  $p = 0.150$ ). This suggests that fixed forms of family culture or physical assets fail to make a significant marginal contribution to the academic performance of the next generation in the absence of specific institutional transformation.

The estimated value of the direct path from family income to students' English academic achievement is -0.153, with a critical ratio (C.R.) of -1.959; its p-value falls precisely at the test threshold ( $p = 0.050$ ). This phenomenon, where a negative sign emerges at the margin of significance after controlling for mediating variables, constitutes a typical suppression effect in econometrics. It indicates that, after controlling for equivalent levels of access to resources inside and outside school (ERA) and hardware assets (HR), a pure increase in family economic capital does not directly lead to a linear increase in English test scores; rather, it exhibits a negative marginal effect. This counterintuitive result may stem from the transmission of academic anxiety among higher-class families in the context of the "Double Reduction" policy, excessive interference in their children's academic affairs, or resource misallocation caused by purely financial investment. The weakness and sign reversal of this direct path further suggest that the positive impact of family economic capital on academic performance is not achieved directly but relies on specific mediating mechanisms for its transmission or moderation.

**Table 7.**  
Structural Path Coefficients and Hypothesis Testing Results.

Pathway	$\beta_{std}$	S.E.	C.R.	p	Result
ERA ← FI	0.541	0.072	7.496	***	Supported
ERA ← HR	0.075	0.063	1.190	0.234	Not Supported
SEA ← FI	-0.153	0.090	-1.959	0.050	Counter-intuitive
SEA ← HR	0.095	0.075	1.441	0.150	Not Supported
SEA ← ERA	0.522	0.088	6.804	***	Supported

## 5.6. Test for Mediation Relationship

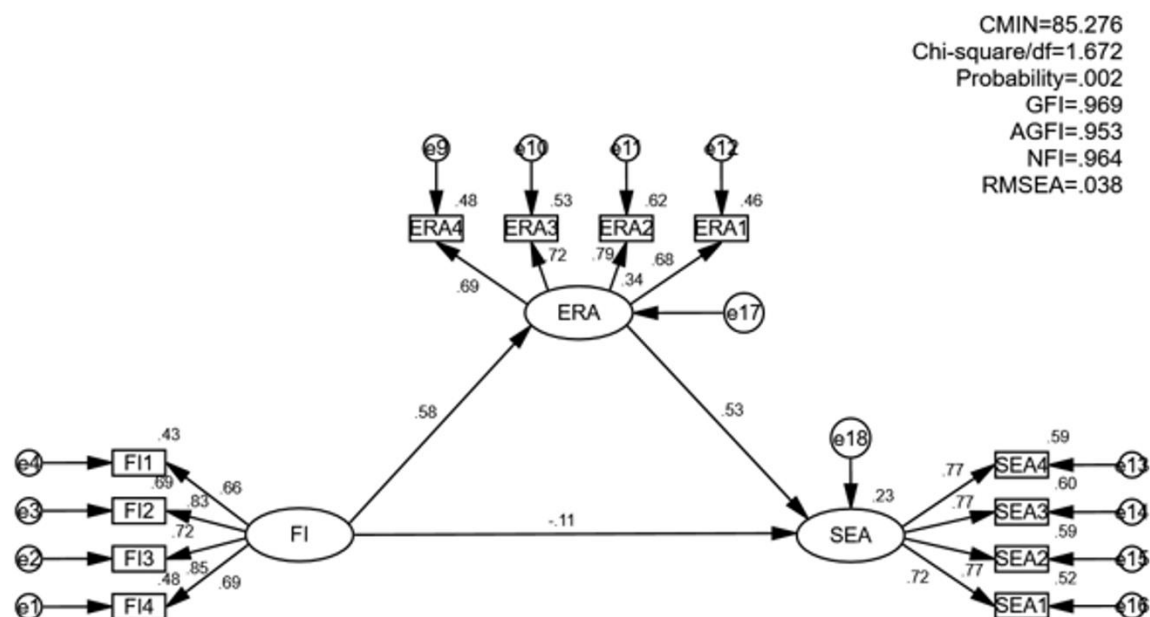
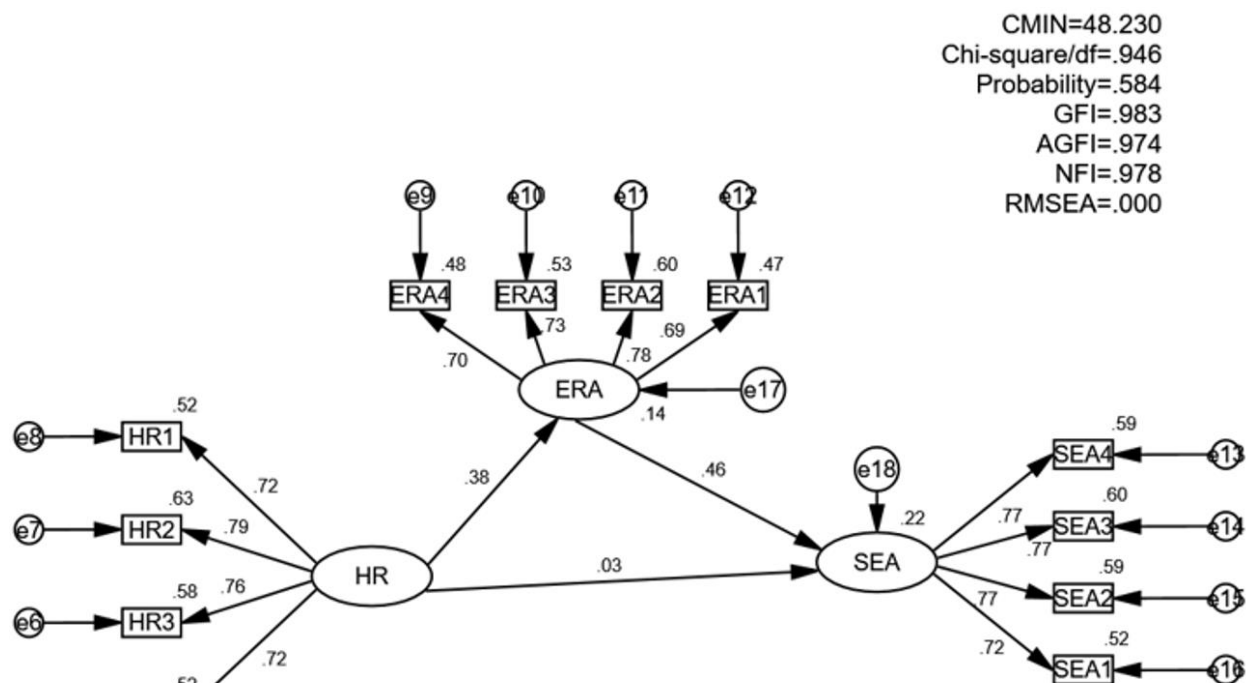


Figure 4.  
Mediating Model (FI→ERA→SEA).

As shown in Table 8, the results of the bootstrap sampling test indicate that the mediating path is statistically significant. In the two-sided 95% confidence interval assessment, the estimated indirect effect coefficient for access to educational resources (ERA) is 0.358, with a bias-corrected confidence interval of  $[0.246, 0.486]$  and a p-value of 0.001. Since both the upper and lower bounds of this interval are greater than 0, meaning the probability of crossing the zero point is 0, this strongly confirms the structural robustness of the indirect path. Correspondingly, when the mediating variable (ERA) is included in the model to control for the path, the direct effect of household income on English academic achievement declines to -0.123, with a 95% confidence interval  $[-0.288, 0.043]$  that includes 0, and  $p = 0.144$ , indicating that the direct effect is statistically insignificant. This parameter combination, where the indirect effect is significant while the direct effect is not, constitutes full mediation. This result reveals that the driving force of household financial capital on foreign language academic achievement is not realized directly through a purely linear model of financial accumulation. Rather, the economic advantages of the family must be fully externalized and transformed into concrete channels for accessing educational resources in order to exert their ultimate marginal utility in academic achievement through the mediating role of these resources. Once the class-based disparities in resource access are eliminated or leveled, the direct promotional effect of financial capital on the English proficiency of junior high school students ceases to be statistically significant.

Table 8.  
Bootstrapping Analysis of Mediating Model(FI→ERA→SEA).

Parameter	Estimate	Lower	Upper	P
Direct effect	-0.123	-0.288	0.043	0.144
Indirect effect	0.358	0.246	0.486	0.001
Total effect	0.235	0.092	0.368	0.001



**Figure 5.**  
Mediating Model(HR→ERA→SEA).

As shown in Table 9, Bootstrap parameter estimates indicate that access to educational resources (ERA) plays a clear and robust mediating role between household resources (HR) and students' English academic achievement (SEA). Specifically, the point estimate of the indirect effect for this path is 0.198, with a two-sided 95% bias-corrected confidence interval of  $[-0.130, 0.290]$  and a significance level of  $p = 0.001$ . Since the upper and lower limits of this confidence interval are entirely confined within the positive range and do not cross the statistical threshold of 0, this fully confirms the structural robustness of the indirect path.

In contrast, after controlling for the dilution and transmission effects of the mediating variable (ERA), the direct effect of family resources on English academic achievement declined to 0.038, with a 95% confidence interval of  $[-0.094, 0.166]$  and a  $p$ -value as high as 0.593. This interval spans a wide range around zero, and the  $p$ -value far exceeds the 0.05 threshold, indicating that the direct effect is statistically equivalent to random error. This constitutes a very pure case of full mediation.

The marginal contribution of household fixed assets, cultural capital, or environmental support (HR) to foreign language academic ability is not achieved directly through the physical influence of the home environment. These fixed forms of family capital must first serve as upfront investments, successfully externalized and transformed into the actual acquisition and utilization of specific educational resources both inside and outside of school (ERA). Only then, through this necessary institutional bridge of resource acquisition, can they ultimately translate into increased test scores. The complete disappearance of the direct effect in this study strongly demonstrates that resource transformation is the absolute core mechanism through which class background influences language learning outcomes.

**Table 9.**  
Bootstrapping Analysis of HR-Driven Direct, Indirect, and Total Effects.

Parameter	Estimate	Lower	Upper	P
Direct effect	0.038	-0.094	0.166	0.593
Indirect effect	0.198	0.130	0.290	0.001
Total effect	0.235	0.100	0.370	0.001

## 6. Discussion

This study conducted a structural equation modeling analysis of the mechanisms through which family background influences the foreign language academic achievement of junior high school students. The empirical findings provide micro-level empirical evidence for understanding the stratification of English academic achievement among middle school students in central China.

The fully mediating mechanisms of family financial capital (FI) and non-financial capital (HR) in driving academic outcomes strongly support and deepen the theoretical perspective on the hidden transmission of capital within classical reproduction theory. Bootstrap tests consistently indicate that, after controlling for mediating variables, the direct effects of both family income (FI) and fixed household resources (HR) on students' English academic achievement (SEA) completely attenuate to statistical zero, demonstrating a pattern of pure and complete mediation. This finding suggests that the advantages derived from class background are not a form of natural, physical osmosis or a linear conversion of financial resources, but rather must be fully externalized and transformed into specific, institutionalized channels for accessing educational resources (ERA) to take effect. Bourdieu noted in his model of cultural capital reproduction that the transformation of economic capital into cultural capital requires specific mediating agents, and that this process is often obscured by the everyday nature of the family environment. The findings of this study regarding full mediation provide precise quantitative evidence demonstrating that, in the context of English resource transformation (ERA) serves as the absolute core hub for either blocking or transmitting the benefits of family background. It levels the playing field in resource access, rendering the direct benefits of social class background nonexistent.

Second, the suppression effect exhibited by the direct path from family income to English academic achievement offers a novel marginal perspective for analyzing family educational behavior during the current period of macro-policy transition. In the structural path coefficient analysis, after controlling for educational resource acquisition (ERA) and fixed household resources (HR), the direct effect coefficient of family income on English academic achievement exhibited a significant negative reversal ( $\beta = -0.153$ ,  $p = 0.050$ ). This counterintuitive net negative marginal effect constitutes a suppression phenomenon in econometrics, and the sociological mechanism behind it is deeply intertwined with the policy environment of the "Double Reduction" initiative implemented in China in recent years. Against the backdrop of current policies strictly regulating off-campus academic tutoring, high-income families generally experience class capital anxiety when facing high-weighted composite subjects such as English, due to the lack of open channels for premium returns. This anxiety often manifests as excessive parental interference in children's academic affairs, irrational herd-mentality investments, and blind financial over-expenditure, leading to a misallocation of resources in terms of pure financial investment. After controlling for equal levels of substantive resource acquisition (ERA), the high-pressure family environment and excessive intervention resulting purely from the accumulation of money may, in fact, have negative spillover effects on junior high school students' subjective language learning efficacy, intrinsic motivation, and daily psychological resilience. This further confirms the policy implication that blindly providing money is less effective than precisely converting resources.

Finally, a comparison of the mediating model parameters driven by FI and HR reveals a clear divergence in effectiveness when different forms of capital are converted into concrete resource acquisition. Although both models exhibit full mediation, the indirect effect driven by family income significantly surpasses that driven by family resources. This disparity in data precisely reflects the commodified nature of the urban-rural educational resource market in central provincial capitals and their peripheral counties and districts. Given that foreign language learning relies heavily on cutting-

edge digital hardware and software, access to foreign or highly qualified teachers, and authentic audiovisual resources, the acquisition of such resources remains largely dependent on the purchasing power of immediate financial capital (FI). In contrast, fixed household resources (HR) have a longer monetization cycle as static cultural assets and are easily diluted by standardized hardware allocations within the urban and rural school systems. Consequently, dynamic financial capital continues to demonstrate greater penetration rates and sensitivity to capital realization than static cultural assets when it comes to bridging spatial and institutional divides and directly translating into high-quality extracurricular English education resources. This provides empirical insights for future educational equity policies aimed at precisely preventing the transmission of economic disparities into academic disparities.

## 7. Conclusion

Against the macro-level backdrop of educational stratification between urban and rural areas in central China, this study systematically examines the internal pathways and boundaries through which family capital is translated into the next generation's foreign language academic achievement, drawing on first-hand survey data from 465 eighth-grade students in Nanchang City and its surrounding counties in Jiangxi Province. Empirical results indicate the following: First, the influence of family background on middle school students' English academic achievement does not manifest as direct, physical permeation but rather as a form of full mediation. Whether in the form of family income (FI) as a fluid resource or family resources (HR) as fixed assets, these factors must be fully externalized and transformed into concrete "access to educational resources (ERA)" to indirectly drive academic performance through this institutional bridge. Second, after controlling for equivalent levels of resource access, family income exhibits a significant suppression effect on English grades, reflecting the capital anxiety and financial misallocation experienced by high-income families during the policy transition period under the "Double Reduction" policy framework.

Although this study establishes the full mediating effect of educational resource acquisition in the transmission of family capital, certain empirical limitations remain that require further exploration in future research. First, the use of cross-sectional data in this study limits the strength of inferences regarding causal flows across time series; future research could enhance the robustness of causal chains by adopting a longitudinal design spanning multiple school terms. Second, the sample primarily focuses on Nanchang City and its surrounding counties in Jiangxi Province. Local findings from central China may face heterogeneity constraints when generalized to coastal developed cities or underdeveloped regions in the west; subsequent studies should attempt to incorporate cross-regional multi-group comparative analysis (Multi-group SEM). Finally, the core mediating variable "Access to Educational Resources (ERA)" primarily emphasizes the objective allocation of hardware and software resources, failing to fully account for the quality of students' subjective interactions during resource utilization and the internalization of digital literacy. Future models could attempt to finely deconstruct the "passive possession" and "active efficacy" of resources to further reveal the deep-seated mechanisms through which family soft capital creates academic stratification at the micro level.

### Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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