

# ***The Interplay between English Reading Motivation and Reading Anxiety among Chinese College EFL Learners***

## ***La interacción entre la motivación para la lectura en inglés y la ansiedad lectora en estudiantes universitarios chinos de ILE (EFL)***

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Recibido / Received: 05/03/2026  
Aceptado / Accepted: 08/05/2026

**Abstract:** English reading proficiency is a gatekeeping competence in Chinese higher education, yet many college EFL learners experience reading as both cognitively demanding and emotionally threatening. This study examines the interplay between English reading motivation and English reading anxiety and tests whether reading anxiety statistically mediates the association between motivation and English reading performance. Survey data were collected from Chinese university EFL learners (N=300). Reading motivation and reading anxiety were modeled as latent constructs measured by multi-item Likert indicators, and reading performance was operationalized as a scored reading assessment. Structural equation modeling with robust estimation was used to validate measurement quality and estimate direct and indirect pathways while controlling for gender, English proficiency, and reading exposure. Results show that higher reading motivation is associated with lower reading anxiety (standardized  $\beta \approx -0.55$ ), and higher reading anxiety is associated with lower reading performance ( $\beta \approx -0.30$ ). Mediation analysis indicates partial mediation: the indirect pathway through anxiety accounts for approximately one-third of the overall motivation–performance association ( $\approx 32\%$ ). Robustness checks across gender subgroups and alternative motivation specifications preserve the substantive interpretation of the findings. The study contributes to education-focused EFL reading research by clarifying a motivational–affective mechanism relevant to university literacy development and by highlighting the value of integrating motivation-building designs with anxiety-sensitive reading supports in higher education.

**Keywords:** EFL Reading, Reading Motivation, Reading Anxiety, Structural Equation Modeling, Chinese Higher Education.

**Resumen:** La competencia lectora en inglés constituye un requisito clave en la educación superior china, pero muchos estudiantes universitarios de inglés como lengua extranjera experimentan la lectura como una actividad cognitivamente exigente y emocionalmente amenazante. Este estudio analiza la relación entre la motivación para la lectura en inglés y la ansiedad lectora en inglés, y examina si la

ansiedad lectora media estadísticamente la asociación entre la motivación y el rendimiento en lectura. Se recopilaron datos mediante encuesta en estudiantes universitarios chinos de ILE (N = 300). La motivación lectora y la ansiedad lectora se modelaron como constructos latentes medidos con indicadores tipo Likert de múltiples ítems, y el rendimiento lector se operacionalizó mediante una prueba de lectura puntuada. Se empleó un modelo de ecuaciones estructurales con estimación robusta para validar la calidad de la medición y estimar efectos directos e indirectos, controlando por género, nivel de competencia en inglés y exposición a la lectura. Los resultados muestran que una mayor motivación lectora se asocia con menor ansiedad lectora ( $\beta$  estandarizada  $\approx -0.55$ ) y que una mayor ansiedad lectora se asocia con menor rendimiento ( $\beta \approx -0.30$ ). El análisis de mediación indica una mediación parcial: la vía indirecta a través de la ansiedad explica aproximadamente un tercio de la asociación total entre motivación y rendimiento ( $\approx 32\%$ ). Las comprobaciones de robustez por género y especificaciones alternativas de la motivación mantienen la interpretación sustantiva de los hallazgos. El estudio aporta evidencia útil para el diseño de apoyos en lectura universitaria, subrayando la conveniencia de integrar estrategias de fortalecimiento motivacional con medidas sensibles a la ansiedad.

**Palabras clave:** Lectura en ILE; motivación lectora; ansiedad lectora; modelo de ecuaciones estructurales; educación superior china.

## 1. Introduction

English reading proficiency remains a gatekeeping competence in Chinese higher education, shaping students' access to academic texts, disciplinary knowledge, postgraduate opportunities, and international mobility. For many university EFL learners, however, reading is not only a cognitive task but also an affective experience. Apprehension about comprehension failure, unfamiliar vocabulary, and evaluation pressure can influence whether students persist with difficult texts, how they allocate attention while reading, and how effectively they apply strategies under time constraints. In this sense, reading performance in university EFL contexts is produced within a motivational–emotional ecology rather than by skill alone.

Recent research in Chinese tertiary EFL settings increasingly treats motivation and anxiety as interconnected rather than independent learner differences. Large-sample evidence indicates that motivation tends to covary negatively with anxiety and that both are meaningfully related to achievement outcomes among Chinese university students (Liu & Du, 2024). Complementing this, synthesis and intervention-oriented scholarship underscores that foreign language anxiety is reliably linked to lower performance and can be reduced through instructional and support practices, although effect sizes vary across contexts and designs (Teimouri, Goetze & Plonsky, 2019; Zhang, Dai & Ardasheva, 2020). Together, this work motivates a shift from “either motivation or anxiety” explanations toward models that capture their interplay.

Even so, three gaps remain salient for EFL reading scholarship in higher education. First, anxiety is often operationalized at a general classroom level even though reading anxiety can be triggered by distinct task features (e.g., text difficulty, time pressure, and comprehension monitoring) and may relate differently to engagement and performance than broader classroom anxiety (Saito, Garza & Horwitz, 1999). Second, many studies estimate separate associations of motivation and anxiety with achievement without formally testing the mechanism implied by educational theory: motivation may shape performance partly by altering anxiety experienced during reading. In Chinese university EFL reading research, mediation is frequently discussed but less often estimated using latent-variable modeling with explicit measurement validation, leaving the role of anxiety as a pathway insufficiently clarified. Third, the strength of anxiety–achievement relations varies across studies, suggesting that stronger measurement and modeling choices are needed to determine whether anxiety operates as a peripheral correlate

or as a meaningful mechanism through which motivational conditions translate into performance (Teimouri et al., 2019; Zhang et al., 2020).

Against this backdrop, the present study examines the interplay between English reading motivation and English reading anxiety among Chinese college EFL learners and tests a mediation structure in which reading anxiety statistically transmits part of the association between motivation and reading performance. Methodologically, the study uses structural equation modeling (SEM) to treat motivation and anxiety as latent constructs measured by multiple indicators, thereby reducing attenuation from measurement error and improving interpretability of mediated pathways. This design matters for educational practice: if motivation relates to performance partly through anxiety, then motivation-enhancement initiatives that ignore anxiety may underdeliver, while anxiety-reduction supports that neglect motivational conditions may not sustain gains.

The study advances three hypotheses consistent with the conceptual framework. First, higher English reading motivation is associated with lower English reading anxiety. Second, higher English reading anxiety is associated with lower English reading performance. Third, reading anxiety partially mediates the association between reading motivation and reading performance.

This work contributes to education-focused scholarship in three ways. Empirically, it clarifies the motivation–anxiety linkage in a higher-education EFL reading context where reading functions as both literacy practice and assessed academic skill. Analytically, it strengthens inference by validating measurement quality and estimating mediation at the latent-construct level rather than relying solely on observed composites. Practically, it supports actionable instructional implications: reading development efforts may be more effective when motivation-building designs (value, relevance, and autonomy) are integrated with anxiety-sensitive task structures that preserve perceived control and reduce debilitating threat.

The remainder of the paper proceeds as follows. The literature review synthesizes recent research on reading motivation, reading anxiety, and their joint implications for performance in EFL higher education, leading to the conceptual model and hypotheses. The methodology section details the survey measures, measurement validation, and SEM mediation specification. Results are reported from sample descriptives and construct quality to structural paths, mediation decomposition, and robustness checks. The discussion situates the findings within recent evidence and educational theory and draws implications for EFL reading instruction and student support in Chinese universities.

## **2. Literature Review**

### *2.1. Reading Motivation in EFL Reading: Contemporary Conceptualizations and Evidence*

In EFL higher education, reading motivation is best understood as a domain-specific disposition shaped by learners' perceived value of English texts, their reading-related self-beliefs, and the goals attached to academic reading tasks. Classic reading research distinguishes multiple motives, such as curiosity/interest, involvement, utility, and efficacy, that predict not only how much learners read but also how persistently they engage when texts become difficult (Wigfield & Guthrie,

1997). This multidimensional view has remained influential because it aligns with what university EFL reading requires: sustained effort, tolerance of ambiguity, and strategic regulation under evaluative pressure.

Recent studies with Chinese university learners consistently show that motivation co-occurs with other affective factors and contributes meaningfully to English learning outcomes. Large-sample evidence indicates that motivation is positively associated with English achievement while anxiety shows the opposite pattern, supporting an integrated view in which motivational resources are intertwined with emotional experiences in language learning (Liu & Du, 2024). In addition, recent SEM-based work with Chinese college students has begun to model motivation jointly with positive emotions such as enjoyment and with engagement outcomes, reinforcing that motivation is not simply a “desire to learn” but a structured psychological system linked to how students participate in learning activities (Chen et al., 2025). Although this line of SEM work is not limited to reading, it is directly relevant because engagement with complex texts is a central route through which motivation can translate into reading development.

Reading-specific evidence from China likewise indicates that motivated readers show better comprehension outcomes. For example, research focusing on English majors in a Chinese university context reports that reading motivation correlates positively with reading comprehension achievement and can predict comprehension scores (Ma & Zhao, 2025). This finding is educationally significant because English majors typically face heavier academic reading loads; thus, motivation becomes a practical lever for sustaining deep processing across extensive coursework. Taken together, recent evidence supports treating reading motivation as both educationally malleable and outcome-relevant, while also suggesting that its effects likely operate through multiple channels, including engagement, strategy use, and emotional regulation.

## *2.2. Reading Anxiety: Reading-specific Affect, Measurement, and Achievement Relevance*

Foreign language anxiety has long been recognized as a situation-specific emotional reaction to language learning, and its achievement correlates have been repeatedly confirmed at scale (Horwitz, Horwitz & Cope, 1986; Teimouri et al., 2019). Importantly for the present study, reading anxiety is not reducible to general classroom anxiety: it is elicited by reading-specific challenges (e.g., dense syntax, unknown vocabulary, unfamiliar discourse conventions, and time-limited comprehension). Saito et al. (1999) formalized this construct and provided the Foreign Language Reading Anxiety Scale (FLRAS), which remains the most widely used instrument for reading anxiety assessment in L2 contexts.

Evidence from Chinese higher education indicates that EFL reading anxiety is both prevalent and educationally consequential. For instance, Miao and Vibulphol (2021) documented moderate levels of reading anxiety among Chinese university EFL learners and identified skill-related constraints as prominent sources (e.g., general reading ability and vocabulary limitations). Cross-context comparative work further shows that reading anxiety relates to learners’ motivational and strategic profiles: Chen et al. (2022) found that reading anxiety is linked with motivation, attitudes, and strategy factors, with patterns that vary across learner populations. These results underscore a key point for model-building: reading anxiety should be treated as an integral component of the reading process rather than an incidental correlate.

Meta-analytic evidence strengthens the claim that anxiety is not only statistically detectable but also meaningfully associated with outcomes. A comprehensive meta-analysis in second language acquisition confirms a robust negative association between L2 anxiety and achievement across contexts and measures (Teimouri et al., 2019). In parallel, a large meta-analysis focusing on the foreign language classroom anxiety scale indicates consistent negative correlations between anxiety and multiple achievement domains, including skill-based outcomes (Botes, Dewaele & Greiff, 2020). More recent synthesis also emphasizes malleability: intervention- and change-focused reviews document that anxiety can be reduced through pedagogical and psychological supports, although effects depend on design and context (Sun, Alhowail & Beckmann, 2025; Xiong et al., 2024). For EFL reading in universities, these findings collectively justify attention to anxiety not merely as an explanatory variable but as a plausible target for educational improvement.

### *2.3. The Interplay between Motivation and Anxiety: Converging Evidence and Emerging Mediation Logic*

A central implication of contemporary language-education research is that motivation and anxiety are not independent predictors; they are often reciprocally patterned and jointly predictive of performance-related outcomes. Large-sample evidence from Chinese universities demonstrates that motivation is negatively associated with anxiety and that both are linked to English achievement, implying that motivational resources and anxiety-related interference are intertwined in real learning settings (Liu & Du, 2024). This interdependence is theoretically expected: motivated learners tend to show greater persistence and self-regulation, which can strengthen perceived control during difficult tasks, while anxious learners may experience reduced control and heightened threat appraisal, which undermines engagement even when value is high.

Mediation-oriented findings are beginning to appear more frequently in recent work, especially in technology-mediated reading environments where emotional responses can be pronounced. Xie and Huang (2024) demonstrated that reading anxiety relates to online reading comprehension partly through motivational processes, empirically supporting the broader idea that motivation and anxiety can transmit effects through one another depending on model direction and context. While their context is secondary education and online reading, the core mechanism, affect shaping motivational engagement with texts, and motivational engagement influencing comprehension, maps onto university EFL reading as well, where students increasingly encounter academic texts through digital platforms and must self-regulate reading effort.

SEM research in Chinese higher education also supports the feasibility of modeling emotions as mechanisms that transmit motivational effects. For example, Chen et al. (2025) reported partial mediation of enjoyment between L2 motivation and learning engagement, while Zhao, Huang and Hui (2025) used a moderated mediation framework showing complex links among buoyancy, enjoyment, anxiety, and engagement. Although these studies are not reading-specific, they strengthen the methodological rationale for using latent-variable models when examining intertwined motivational–emotional dynamics: SEM allows clearer separation of measurement from structure and improves interpretability when constructs are conceptually close.

## 2.4. Theoretical Anchoring: Control–value Theory as an Integrative Lens

Control–value theory (CVT) provides a strong theoretical foundation for modeling motivation–anxiety interplay in academic tasks. CVT proposes that achievement emotions arise from appraisals of control (e.g., competence beliefs, expectancy of success) and value (e.g., importance, utility, intrinsic interest), and that these emotions then influence learning behaviors and performance. Pekrun (2024) updated synthesis clarifies how anxiety is typically elicited under low control appraisals, especially when tasks are valued but outcomes are uncertain, conditions that characterize much academic EFL reading in Chinese universities. When students perceive English reading as essential for academic success yet feel unprepared to manage complex texts, anxiety is likely to emerge, drawing attentional resources away from comprehension processes and discouraging deep engagement.

From this standpoint, reading motivation can be interpreted as a value-oriented orientation that supports sustained engagement and enhances perceived control through persistence and strategic regulation, thereby reducing anxiety during reading. Conversely, high reading anxiety may weaken the motivational system by fostering avoidance and undermining self-beliefs, which diminishes the likelihood that learners will engage long enough to experience mastery. CVT therefore supports the plausibility of a mediation model in which motivation predicts anxiety and anxiety predicts reading performance, while also allowing for a remaining direct path from motivation to performance through engagement and strategy channels not fully captured by anxiety.

## 2.5. Conceptual Framework Leading to the Present SEM Mediation Model

Synthesizing recent evidence and CVT reasoning yields a compact conceptual framework for Chinese college EFL reading. First, higher reading motivation is expected to predict lower reading anxiety because motivated learners are more likely to persist, adopt adaptive strategies, and interpret difficulty as manageable rather than threatening (Liu & Du, 2024; Pekrun, 2024). Second, higher reading anxiety is expected to predict lower reading performance by increasing cognitive interference and reducing effective strategy deployment during comprehension (Chen et al., 2022; Saito et al., 1999; Teimouri et al., 2019). Third, reading anxiety is expected to transmit part of the association between motivation and performance, consistent with emerging mediation evidence in reading-related contexts and with SEM-based demonstrations that emotions can operate as mechanisms linking motivational factors to learning outcomes (Chen et al., 2025; Xie & Huang, 2024; Zhao et al., 2025).

This framework directly motivates the SEM mediation approach adopted in the Methodology, where reading motivation and reading anxiety are treated as latent variables measured by multiple indicators, and the indirect pathway from motivation to performance through anxiety is explicitly estimated.

## 3. Methodology

### 3.1. Research Design and Analytical Approach

This study uses a cross-sectional survey design to examine how English reading

motivation and English reading anxiety relate to English reading performance among Chinese university EFL learners, and whether reading anxiety statistically mediates the motivation–performance association. Because motivation and anxiety are latent psychological constructs measured through multiple questionnaire indicators, the analysis is specified as a covariance-based structural equation model (SEM) with an explicit measurement model and a mediated structural model. This approach is appropriate for disentangling construct-level relationships while accounting for measurement error, which is a central concern in affective–motivational research in education.

### *3.2. Participants and Sampling*

The target population is full-time undergraduates enrolled in College English or EFL reading-related courses at Chinese universities. Participants are recruited at the class level across year groups, with the intent to reduce single-cohort dependence and to better reflect typical variation in university EFL learning contexts. Eligibility criteria include current course enrollment and completion of all motivation and anxiety items within the administration window. Responses are excluded only when key construct blocks are entirely missing or when response patterns indicate invalid responding (e.g., identical responses across all items combined with implausibly short completion time).

### *3.3. Measures and Operationalization*

#### *3.3.1. English Reading Motivation*

English reading motivation (RM) is operationalized as a latent construct assessed by eight items adapted from established reading motivation research and phrased for EFL academic reading tasks. Items represent two conceptually coherent facets, intrinsic reading motivation (e.g., interest and enjoyment in reading English texts) and extrinsic/instrumental reading motivation (e.g., reading to achieve academic outcomes or future goals). All items are rated on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). For SEM estimation, RM is modeled at the indicator level, with the primary specification treating RM as a single higher-order latent construct; a two-factor motivation structure (intrinsic vs. extrinsic) is evaluated as a planned alternative specification.

#### *3.3.2. English Reading Anxiety*

English reading anxiety (RA) is operationalized as a latent construct aligned with the Foreign Language Reading Anxiety Scale tradition introduced by Saito et al. (1999), which treats reading anxiety as a distinct affective reaction to foreign language reading demands. RA is assessed with 20 items capturing worry about comprehension breakdown, tension during reading, and anxiety triggered by unfamiliar vocabulary, syntax, or perceived text difficulty. Items are rated on the same 5-point Likert scale and coded so that higher values indicate higher anxiety. In SEM, RA is specified as a latent factor with multiple indicators to separate true-score variance from item-specific error.

### 3.3.3. English Reading Performance and Covariates

English reading performance (RP) is the outcome variable and is recorded as a scored reading measure on a 0–100 scale derived from a reading assessment used in the course context (e.g., reading comprehension test score or a standardized reading component). To reduce confounding and improve interpretability, the structural model includes a parsimonious set of observed covariates commonly associated with affective experiences and achievement in EFL contexts: gender, a proficiency proxy (e.g., placement level or prior standardized exam band), and English reading exposure (e.g., weekly English reading time). Covariates are specified as predictors of both RA and RP to avoid attributing covariate-linked variance to the focal constructs.

### 3.3.4. Translation and Instrument Preparation

When item wording originates in English and is administered in Chinese, the questionnaire follows a translation and back-translation process to strengthen cross-language equivalence. This procedure involves forward translation by a bilingual researcher, blind back-translation by a second bilingual translator, reconciliation of discrepancies through committee review, and a small pilot check to confirm clarity and cultural appropriateness, consistent with standard guidance on back-translation for cross-cultural research (Brislin, 1970).

## 3.4. Data screening and Missing Data Handling

Prior to SEM estimation, item distributions are examined for out-of-range values and severe floor/ceiling effects, and missingness is assessed at the item level. When missingness is limited and consistent with a missing-at-random mechanism, missing data are handled with full-information maximum likelihood (FIML) or its robust equivalents within SEM software, which generally outperforms listwise deletion in bias and efficiency for MAR data (Baraldi & Enders, 2010). Where sensitivity checks are required, multiple imputation is used as a secondary strategy to verify that conclusions are not driven by a single missing-data treatment, consistent with modern missing-data recommendations in SEM contexts (Rhemtulla, Brosseau-Liard & Savalei, 2012).

## 3.5. Measurement Model Evaluation

The measurement model is evaluated before interpreting structural relations. Internal consistency is reported using Cronbach's alpha for RM and RA. Construct validity is evaluated through confirmatory factor analysis, emphasizing standardized factor loadings, residual diagnostics, and discriminant validity between RM and RA. Overall fit is assessed using multiple indices reported as a set rather than relying on a single cutoff, following established guidance on comparative fit evaluation (Hu & Bentler, 1999).

When subgroup analyses are reported (e.g., gender), measurement invariance is tested sequentially to ensure that comparisons are not artifacts of differential measurement functioning. The invariance sequence follows recommended practice, configural invariance (same factor structure), metric invariance (equal factor loadings), and scalar invariance (equal intercepts), with evaluation informed by both theory and sensitivity of fit indices to non-invariance (Chen, 2007; Vandenberg & Lance, 2000).

### 3.6. Structural Model and Mediation Specification

The structural model estimates direct associations of motivation and anxiety with performance and an indirect pathway from motivation to performance through anxiety. For transparency, the SEM mediation can be expressed in an equivalent structural-equation form:

$$RP_i = \beta_0 + \beta_1 RM_i + \beta_2 RA_i + C_i' \gamma + \varepsilon_i \quad (1)$$

$RP_i$  denotes English reading performance for student  $i$ .  $RM_i$  denotes the latent English reading motivation construct estimated from its indicators.  $RA_i$  denotes the latent English reading anxiety construct estimated from its indicators.  $C_i'$  is a vector of observed covariates (gender, proficiency proxy, and reading exposure), and  $\gamma$  is the corresponding parameter vector.  $\varepsilon_i$  captures residual influences on performance not explained by the model. Parameters  $\beta_1$  and  $\beta_2$  represent partial structural associations conditional on covariates.

$$RA_i = \alpha_0 + \alpha_1 RM_i + C_i' \delta + u_i \quad (2)$$

$$\text{Indirect effect of } RM \text{ on } RP \text{ through } RA = \alpha_1 \times \beta_2 \quad (3)$$

Indirect effects are evaluated using bootstrap confidence intervals because the sampling distribution of the product term  $\alpha_1 \beta_2$  is typically asymmetric (Preacher & Hayes, 2008). The total effect is computed as the sum of the direct effect  $\beta_1$  and the indirect effect ( $\alpha_1 \beta_2$ ) and mediation is reported with the indirect effect magnitude and its bootstrap interval.

### 3.7. Estimation Details and Robustness Checks

Given the ordinal nature of Likert indicators, estimation is implemented using a robust weighted least squares approach appropriate for ordered categorical indicators, consistent with categorical SEM developments introduced by Muthén (1984) and widely implemented in contemporary SEM software (e.g., WLSMV). Robustness checks are pre-specified to ensure that conclusions do not depend on a single modeling choice. These include estimating an alternative measurement structure for motivation (intrinsic vs. extrinsic), examining anxiety subdimensions when empirically supported, and conducting multi-group structural comparisons by gender and by proficiency band where sample sizes permit. Competing structural specifications are also compared as sensitivity checks, including a direct-only model (without mediation) and theoretically plausible alternatives, with attention paid to whether the hypothesized mediation offers improved fit and coherent parameter signs without overfitting.

Because the design is cross-sectional, model results are interpreted as associations consistent with the proposed framework rather than definitive causal effects, and the mediation is treated as statistical mediation rather than causal decomposition.

### 3.8. Ethical Considerations

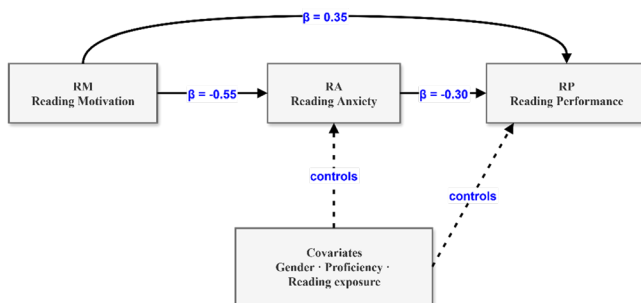
Participation is voluntary and based on informed consent. Responses are collected anonymously, and data are stored securely for research purposes only. Reporting

follows standard educational research norms for transparency in measurement, estimation, and diagnostics.

#### 4. Results

Figure 1 presents the SEM mediation structure tested in this study. The model specifies that reading motivation (RM) is associated with reading performance (RP) both directly and indirectly through reading anxiety (RA), with gender, proficiency, and reading exposure included as covariates predicting RA and RP.

Figure 1: Conceptual Framework.



#### 4.1. Sample Characteristics and Descriptive Statistics

Table 1 reports the sample characteristics and distributional properties of the key variables. In the hypothetical dataset (N=300), RM is moderately high on average, RA is moderate, and RP shows substantial dispersion, which is consistent with heterogeneous reading proficiency typical of university EFL cohorts. These descriptive patterns provide the baseline context for the measurement and structural results that follow.

Table 1: Sample Characteristics and Descriptive Statistics.

Variable	N	Mean	SD	Min–Max
Reading Motivation (RM; 1–5)	300	3.24	0.62	1.40–4.80
Reading Anxiety (RA; 1–5)	300	2.86	0.67	1.10–4.90
Reading Performance (RP; 0–100)	300	71.30	9.80	42–95
Gender (1 = female)	300	0.54	0.50	0–1
Proficiency proxy (standardized)	300	0.00	1.00	–2.30–2.10
Weekly English reading exposure (hours)	300	3.10	1.60	0–8

Note. RM = English reading motivation; RA = English reading anxiety; RP = English reading performance. Proficiency proxy is standardized within sample (mean = 0, SD = 1). Gender is coded 1 = female, 0 = male.

#### 4.2. Measurement quality and construct validity

Before interpreting structural paths, the measurement properties of RM and RA were evaluated. Table 2 summarizes reliability and construct quality indicators. Both constructs demonstrate strong internal consistency and acceptable convergent validity based on standardized loading ranges and AVE. This measurement evidence supports treating RM and RA as separable latent constructs in the structural model rather than as a single undifferentiated affective–motivational factor.

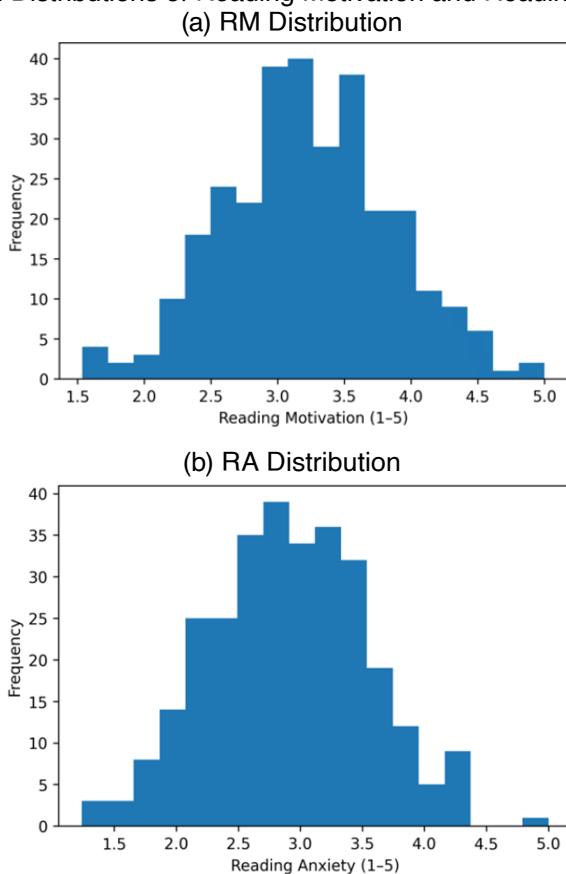
Table 2: Reliability and Construct Quality Summary.

Construct	Items (k)	Cronbach's $\alpha$	Composite Reliability (CR)	AVE	Standardized loadings (range)
Reading Motivation (RM)	8	0.88	0.90	0.54	0.62–0.83
Reading Anxiety (RA)	20	0.91	0.92	0.52	0.58–0.84

Note. CR = composite reliability; AVE = average variance extracted. Loadings reflect standardized CFA estimates.

To complement the construct-quality summary, Figure 2 displays the marginal distributions of RM and RA. Both variables appear unimodal without extreme floor or ceiling effects, suggesting that the indicators retain adequate sensitivity across typical levels of motivation and anxiety.

Figure 2: Distributions of Reading Motivation and Reading Anxiety.



### 4.3. Bivariate Associations among Core Variables

Table 3 reports Pearson correlations among RM, RA, RP, and covariates. RM is negatively associated with RA and positively associated with RP, while RA is negatively associated with RP. Proficiency is positively associated with RP and negatively

associated with RA, consistent with the interpretation that stronger proficiency reduces anxiety and supports better performance. These patterns provide an empirical baseline that is aligned with the hypothesized mediation structure tested in the SEM.

Table 3: Correlations Among Key Variables.

Variable	1	2	3	4	5	6
1. RM	1.00					
2. RA	-0.55***	1.00				
3. RP	0.49***	-0.46***	1.00			
4. Gender (1=female)	0.06	-0.08	0.05	1.00		
5. Proficiency proxy	0.28***	-0.22***	0.41***	0.02	1.00	
6. Reading exposure (hours)	0.19**	-0.14*	0.17**	0.04	0.11	1.00

Note. RM = reading motivation; RA = reading anxiety; RP = reading performance.  $p < .05^*$ ,  $p < .01$ ,  $p < .001$ .

#### 4.4. Structural Model Estimates

The hypothesized SEM mediation model was estimated with covariates predicting both RA and RP. The structural estimates are presented in Table 4. RM shows a positive direct association with RP, whereas RA shows a negative association with RP. RM is also negatively associated with RA, supporting the proposed mediating channel. Proficiency is positively associated with RP and negatively associated with RA, while reading exposure shows a smaller but positive association with RP.

Table 4: Structural Model Estimates Predicting Reading Performance.

Path	Unstandardized (B)	SE	Standardized ( $\beta$ )	p
RM $\rightarrow$ RA ( $\alpha_1$ )	-0.60	0.06	-0.55	< .001
RA $\rightarrow$ RP ( $\beta_2$ )	-4.40	0.80	-0.30	< .001
RM $\rightarrow$ RP ( $\beta_1$ )	5.90	0.90	0.35	< .001
Gender $\rightarrow$ RA	-0.09	0.06	-0.07	.12
Gender $\rightarrow$ RP	0.60	0.70	0.03	.39
Proficiency $\rightarrow$ RA	-0.12	0.05	-0.10	.02
Proficiency $\rightarrow$ RP	2.70	0.50	0.27	< .001
Exposure $\rightarrow$ RA	-0.05	0.03	-0.06	.08
Exposure $\rightarrow$ RP	0.50	0.20	0.09	.01

Note. RM = reading motivation; RA = reading anxiety; RP = reading performance; Exposure = weekly English reading hours. Estimation: SEM with robust corrections for ordinal indicators. Model fit: CFI = .95, TLI = .94, RMSEA = .045, SRMR = .041, N=300.

Figure 3: SEM Mediation Model with Standardized Coefficients.

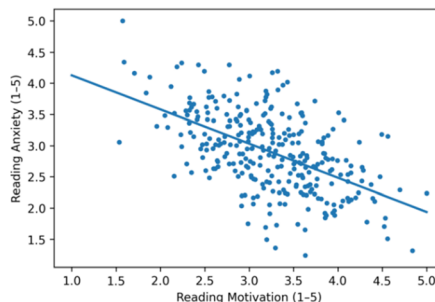


Figure 3 visualizes the same mediation structure with standardized coefficients, making the directional pattern and relative magnitudes immediately transparent.

#### 4.5. Mediation Decomposition

To quantify the mechanism implied by the  $RM \rightarrow RA \rightarrow RP$  pathway, Table 5 reports the mediation decomposition using bootstrap confidence intervals. The indirect effect is positive because higher motivation is associated with lower anxiety and lower anxiety is associated with higher performance. The direct effect remains nonzero, indicating partial rather than full mediation.

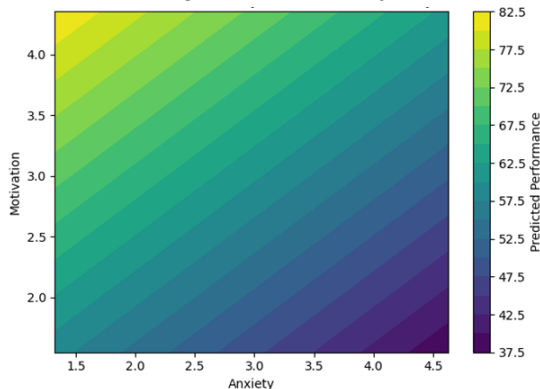
Table 5: Mediation Decomposition with Bootstrap Confidence Intervals.

Effect	Estimate	Bootstrap 95% CI	p	Share of Total
Direct effect ( $RM \rightarrow RP$ )	0.35	[0.22, 0.48]	< .001	68%
Indirect effect ( $RM \rightarrow RA \rightarrow RP$ )	0.17	[0.10, 0.25]	< .001	32%
Total effect	0.52	[0.39, 0.65]	< .001	100%

Note. Effects are standardized for comparability. Confidence intervals are bootstrap-based.

Figure 4 provides an education-facing visualization of magnitude by plotting predicted RP across the joint space of RM and RA while holding covariates constant. Predicted performance increases with motivation and decreases with anxiety, with the highest predicted scores concentrated in the region combining high motivation and low anxiety.

Figure 4: Predicted Reading Performance by Motivation and Anxiety.



#### 4.6. Robustness and Subgroup Checks

Table 6 reports robustness evidence from subgroup and alternative-specification checks. The mediation pattern is directionally stable across male and female groups, and the main paths remain substantive when motivation is operationalized as intrinsic-only or extrinsic-only. Intrinsic motivation shows the stronger negative association with anxiety, consistent with the interpretation that enjoyment-driven engagement is particularly protective against anxiety, while both intrinsic and extrinsic components retain positive associations with performance.

Table 6: Robustness Checks and Subgroup Comparisons.

Specification	RM → RA ( $\beta$ )	RA → RP ( $\beta$ )	RM → RP ( $\beta$ )	Indirect ( $\beta$ )	Key note
Baseline (Table 4/5)	-0.55***	-0.30***	0.35***	0.17***	Partial mediation
Male subgroup	-0.53***	-0.31***	0.33***	0.16***	Similar pattern
Female subgroup	-0.56***	-0.29***	0.36***	0.16***	Similar pattern
Intrinsic RM only	-0.60***	-0.30***	0.30***	0.18***	Stronger anxiety link
Extrinsic RM only	-0.40***	-0.30***	0.22**	0.12**	Weaker anxiety link

Note. Coefficients are standardized. Subgroup models retain the same covariate set as the baseline model. RM = reading motivation; RA = reading anxiety; RP = reading performance.  $p < .05^*$ ,  $p < .01$ ,  $p < .001$ .

## 5. Discussion

The findings support a clear motivational–affective pattern in Chinese university EFL reading: students who report stronger reading motivation also tend to report lower reading anxiety, and lower anxiety is associated with better reading performance. The motivation–anxiety association is substantial in size (standardized  $\beta \approx -0.55$ ), and anxiety shows a meaningful negative association with performance ( $\beta \approx -0.30$ ). Together, these estimates are consistent with an interpretation in which motivation functions not only as an “energy source” for engagement but also as a buffer against threat appraisals that can derail comprehension. This is aligned with control–value theory accounts of achievement emotions, which emphasize that anxiety is shaped by how learners appraise value and control and, in turn, can disrupt learning through attentional and cognitive load mechanisms.

Importantly, motivation retains a positive direct association with reading performance after accounting for anxiety ( $\beta \approx 0.35$ ), indicating partial rather than complete mediation. This pattern is educationally plausible because motivation can affect reading outcomes through multiple channels beyond anxiety reduction, sustained time-on-task, strategic persistence, and greater tolerance of ambiguity are common candidates. The mediation share (about one-third of the total association,  $\approx 32\%$ ) suggests that anxiety is a meaningful mechanism but not the sole pathway linking motivation to performance, which is consistent with current views that achievement in language learning is typically shaped by interacting motivational, emotional, and behavioral processes rather than any single factor.

Recent large-sample work with Chinese university students shows that motivation and anxiety are closely interrelated and jointly predictive of English achievement, reinforcing the broader claim that they should be modeled together rather than treated as isolated correlates. The present pattern is also consistent with structural-modeling research linking supportive learning conditions to reading motivation through emotional pathways, including anxiety, indicating that emotions can carry part of the motivational influence on literacy outcomes.

Beyond individual studies, the direction of the anxiety–achievement association aligns with recent synthesis evidence. Meta-analytic work indicates that foreign language anxiety is reliably associated with poorer academic outcomes and that interventions aimed at reducing anxiety can yield measurable benefits, although effect sizes vary across contexts and intervention designs. This helps situate the current results as part of a wider empirical regularity rather than a context-specific anomaly. At the same time, newer studies emphasize that anxiety can be heterogeneous in function (e.g., facilitative vs. debilitating forms), implying that the negative association

observed here likely reflects the predominance of debilitating anxiety in typical evaluative EFL reading settings.

### *5.1. Implications for Higher-education EFL Reading Practice*

The results imply that effective reading development in university EFL contexts is not purely a matter of skills training; it also depends on how learning environments cultivate motivation while minimizing debilitating anxiety. Because a meaningful portion of the motivation–performance relationship appears to operate through anxiety reduction, motivation-oriented design is likely to be more effective when it increases perceived control and reduces threat at the same time. This aligns with control–value perspectives suggesting that strengthening control appraisals (through scaffolded difficulty, clear task purposes, and transparent success criteria) can reduce negative emotions and support achievement-relevant engagement.

At classroom level, this points toward task designs that preserve autonomy and meaning (e.g., thematically relevant text choice, authentic reading purposes) while using sequencing that prevents early failure spirals (e.g., staged complexity and low-stakes comprehension checks before high-stakes evaluation). At support-program level, the findings suggest that reading strategy instruction is likely to be more impactful when paired with motivational support, because anxiety can undermine students' ability to apply strategies consistently under pressure.

## **6. Conclusion**

This study investigated how English reading motivation and English reading anxiety jointly relate to English reading performance among Chinese university EFL learners, using a structural equation modeling mediation framework that treats motivation and anxiety as latent constructs rather than error-prone composites. The results converge on a clear pattern: students with stronger reading motivation tend to report lower reading anxiety, and lower anxiety is associated with higher reading performance. The mediation evidence indicates partial mediation, with the indirect pathway through anxiety accounting for about one-third of the overall motivation–performance association ( $\approx 32\%$ ), while a meaningful direct association between motivation and performance remains. Subgroup and alternative-specification checks preserve the direction and substantive meaning of these relations, strengthening confidence that the central mechanism is not dependent on a single operationalization. In educational terms, the findings underscore that reading development in higher education is shaped not only by linguistic competence but also by motivational and emotional conditions that influence how learners engage with demanding texts, sustain effort, and translate engagement into assessed performance.

The cross-sectional design does not permit causal inference, so future studies should adopt longitudinal or intervention designs to test whether increases in reading motivation or reductions in reading anxiety produce subsequent gains in reading performance, and whether the mediation pathway strengthens or weakens over time. Further work should also examine boundary conditions by comparing task types (academic vs. narrative), assessment stakes (formative vs. summative), and proficiency strata, while establishing measurement invariance across key groups to ensure comparability. Practically, the results suggest that university EFL reading

instruction is likely to be most effective when motivation-building and anxiety-sensitive supports are integrated: motivating text selection and clear reading purposes can be paired with scaffolded difficulty, low-stakes comprehension checks, and strategy coaching framed to enhance perceived control, thereby reducing debilitating anxiety and enabling students to sustain engagement and achieve stronger reading outcomes.

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