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## The relationship between Chinese language learners' L2 grit and academic achievement: The mediating effect of academic emotions of enjoyment and anxiety

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**Abstract.** The aim of this study was to examine the relationship between L2 grit, academic emotions (enjoyment and anxiety), and Chinese language achievement, as well as to determine the mediating role of academic emotions in this relationship. Using quantitative methods, it was found that participants demonstrated moderately low levels of L2 grit (mean = 3.323 out of 5) and academic anxiety (mean = 3.264), while academic enjoyment was moderately high (mean = 3.919). The study explored the relationships between L2 grit, academic emotions, and Chinese language achievement (HSK level and self-rated proficiency), as well as the mediating effects of these two factors. L2 grit showed a significant positive correlation with both academic enjoyment ( $r = 0.268$ ,  $p < 0.01$ ) and academic anxiety ( $r = 0.434$ ,  $p < 0.01$ ). Although a positive correlation between academic enjoyment and anxiety was observed ( $r = 0.104$ ), it was not statistically significant ( $p > 0.05$ ). Notably, L2 grit had a significant negative correlation with Chinese language achievement, particularly with HSK level ( $r = -0.206$ ,  $p < 0.01$ ), while its relationship with self-rated proficiency was not significant ( $r = -0.117$ ,  $p > 0.05$ ). Academic anxiety demonstrated a significant negative correlation with both achievement indicators (with HSK level:  $r = -0.287$ ,  $p < 0.01$ ; with self-rated proficiency:  $r = -0.252$ ,  $p < 0.01$ ), whereas the relationship between academic enjoyment and achievement was not significant. It was also found that academic emotions, especially anxiety, played a significant indirect mediating role in the relationship between L2 grit and HSK level (effect value =  $-0.222$ ; 95% CI  $[-0.378, -0.071]$ ), while the direct effect was not significant (effect value =  $-0.214$ ; 95% CI included zero). The total proportion of the indirect effect was 50.5%. These findings reveal the complex role of academic emotions in second language acquisition, provide new insights for Chinese language teaching, and highlight the importance of addressing students' emotional factors and fostering perseverance

**Keywords:** second language learning; questionnaire survey; mediation model; achievement emotions; self-regulation; motivational persistence

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## ■ INTRODUCTION

For international learners, mastering Chinese as a second language is a long-term, inherently challenging process shaped by linguistic complexity and cross-cultural adaptation demands. In this environment, the role of learners' psychological attributes in sustaining effort and achieving success is paramount. Second language (L2) grit, defined as the combination of perseverance and passion for long-term language learning goals, emerges as a critical non-cognitive trait that may underpin academic resilience and achievement. Concurrently, academic emotions, especially enjoyment and anxiety, are recognised as pivotal affective experiences that directly colour the learning process and likely serve as key mechanisms linking stable personality traits like grit to tangible learning outcomes. However, the specific pathways through which L2 grit, via these contrasting emotions, influences the academic achievement of Chinese language learners remain insufficiently charted. Investigating this integrated relationship is therefore of significant practical relevance, as it can inform pedagogical strategies aimed at cultivating adaptive psychological profiles and fostering emotionally supportive learning environments to optimise learner success.

Recent scholarship has substantiated the importance of domain-specific L2 grit. Y. Teimouri *et al.* (2022) argued that L2 grit, conceptualised as passion and perseverance specific to language learning, demonstrates stronger and more consistent predictive validity for L2 achievement compared to general grit measures. Supporting this, a conceptual replication study by H. Lin & C. Wang (2025) confirmed the stable factor structure of the L2-Grit Scale and its ability to predict L2 course grades and standardised test scores. However, the relationship between L2 grit and achievement is not always straightforward. E. Sudina & L. Plonsky (2021) emphasised that domain-specific measurement is crucial, as general grit studies yield inconsistent results, while A. Alamer (2021) found that initial grit only indirectly predicted later vocabulary knowledge through later grit, highlighting the complexity of its temporal effects. Parallel research underscores the powerful role of academic emotions. In the context of Chinese learners, J.-M. Dewaele & C. Li (2022) demonstrated that self-perceived overall English proficiency was a stronger predictor of both Foreign Language Enjoyment (FLE) and Foreign Language Classroom Anxiety (FLCA) than actual test scores, revealing the subjective nature of emotional experiences. Furthermore, they found domain-specific perceptions, such as of speaking and grammar, significantly predicted these emotions. The consequences of these emotions are well-established. Studies consistently show enjoyment's positive impact; for instance, W. Chen *et al.* (2021) found that among beginner Chinese as a second language (CSL) or Chinese as a foreign language (CFL) learners, enjoyment levels were significantly higher than anxiety and were linked to positive learning experiences. Conversely, anxiety often exerts a negative influence, as noted in research on online learning where specific difficulties and

interaction deficits were primary anxiety sources for CSL learners (Xie & Luo, 2021). Crucially, emerging evidence points to emotions as mediators in the grit-achievement link. X. Wei *et al.* (2024) found that classroom environment and L2 grit influenced English achievement indirectly through the mediating effects of enjoyment, anxiety, and boredom, with no direct effects. Y. Wang (2023) further illustrated that both perseverance of effort and consistency of interest in L2 grit indirectly influenced willingness to communicate through the parallel mediation of FLE and FLCA. These studies collectively affirm that emotions are not mere correlates but active pathways.

Despite these advances, a specific gap persists. While mediation has been explored in English as a Foreign Language (EFL) contexts, there is a paucity of research that simultaneously examines the dual mediating roles of academic enjoyment and anxiety in the relationship between L2 grit and academic achievement specifically within the population of Chinese language learners (i.e., learners of Chinese as a second/foreign language). Most existing studies focus on Chinese learners of English, leaving the dynamics within CSL/CFL contexts less understood. Therefore, the present study aimed to investigate the relationship between L2 grit and academic achievement among Chinese language learners and to test the parallel mediating effects of academic enjoyment and anxiety in this relationship.

## ■ LITERATURE REVIEW

Grit, defined as "perseverance and passion for long-term goals" by A. Duckworth *et al.* (2007), adapts to second language acquisition (SLA) as L2 grit – a learner's sustained passion and perseverance for mastering a second language. It has two factors: perseverance of effort (PE, persistent work despite obstacles) and consistency of interest (CI, stable learning passion). Recent research focuses on its measurement: Y. Teimouri *et al.* (2022) developed a domain-specific L2 grit scale; E. Sudina & L. Plonsky (2021) advocated this domain-specific approach for better predictive validity, which yields inconsistent findings in SLA contexts. M. Pawlak *et al.* (2025) systematically examined the relationship between L2 grit and various individual difference factors and background variables, further supporting the importance of adopting domain-specific conceptualisation and measurement in the field of second language learning. The relationship between L2 grit and academic achievement, however, is nuanced and may involve complex pathways. A. Alamer (2021), in a longitudinal study, found that initial L2 grit did not have a significant direct effect on later vocabulary knowledge. Instead, its influence was fully mediated by later endorsement of grit, suggesting that the trait's stability and development over time are crucial for its impact on learning outcomes. This highlights grit as a dynamic, rather than static, predictor. Furthermore, research indicates that the two components of L2 grit may play distinct roles. For instance, E. Sudina & L. Plonsky (2021) reported that the PE subscale consistently

showed stronger positive relationships with both L2 achievement and proficiency than the CI subscale across different learner contexts. This aligns with meta-analytic findings in general education suggesting PE is often a more reliable predictor of performance outcomes than CI.

In the specific context of Chinese learners, studies have begun to map the contours of L2 grit. X. Wei *et al.* (2024) validated the L2-Grit Scale in a Chinese EFL context, confirming its two-factor structure and finding that higher self-rated English proficiency was associated with higher levels of L2 grit. More recent research has started to position L2 grit within broader nomological networks. For example, S. Liu (2022) investigated Chinese high school EFL learners and found that L2 grit (both PE and CI) fully mediated the relationship between a growth language mindset and foreign language learning burnout. This positions L2 grit not only as a direct contributor to achievement but also as a critical buffer against negative psychological outcomes, thereby indirectly supporting sustained learning and success. Similarly, A. Alazemi *et al.* (2023) constructed a model showing that L2 grit, along with academic buoyancy, mediated the relationship between academic emotion regulation and personal best goals among EFL learners, highlighting its role in goal pursuit.

Academic enjoyment, is a pivotal positive emotion in SLA, defined as the positive and fulfilling experience of language learning (Dewaele & MacIntyre, 2014). Recent research confirms its multidimensional nature, including personal, social, and teacher-related enjoyment (Wei *et al.*, 2021). It actively facilitates learning by broadening cognitive resources and fostering resilience (Fredrickson, 2001). FLE stems from internal and external factors. Internally, self-efficacy, intrinsic motivation, a growth mindset, and grit, especially perseverance, predict higher enjoyment, as noted by A. Alazemi *et al.* (2023). Externally, a supportive teacher and a positive classroom climate are paramount, as emphasised by S. Liu (2022). In CSL contexts, cultural fascination and authentic language use boost enjoyment (Chen *et al.*, 2021).

The beneficial impact of FLE on language learning is strongly supported by contemporary empirical evidence. Enjoyment is positively correlated with and predictive of higher language achievement, greater willingness to communicate, increased learner engagement, and the use of adaptive self-regulated learning strategies (Liu, 2022; Wang, 2023). It enhances motivation and can create an upward spiral of positive learning experiences. Crucially, FLE often functions not just as a direct predictor but as a key mediator or moderator in the relationship between other psychological traits and learning outcomes. A prominent finding is its mediating role between L2 grit and achievement. It was found that FLE fully mediated the relationship between L2 grit and English scores among Chinese high school students. Similarly, it was demonstrated that English learning enjoyment influenced grades primarily through the mediating pathway of grit, especially perseverance of effort. Furthermore, FLE can serve as a parallel mediator alongside anxiety, explaining how grit influences communicative willingness, and it

can buffer the negative effects of anxiety, highlighting the dynamic interplay within the learner's emotional ecosystem (Sudina & Plonsky, 2021; Wang, 2023). In summary, recent research firmly establishes FLE as a complex, multi-source positive emotion with profound implications for language learning success. It underscores the critical role of teacher and classroom environment, validates its positive impact on cognitive, behavioural, and performance outcomes, and, most importantly, positions it as a central mechanism that translates enduring personal qualities like grit into tangible academic success. This body of work, increasingly inclusive of CSL contexts, argues for pedagogical practices that consciously cultivate enjoyment to create more effective and sustainable language learning environments.

Academic anxiety, most prominently operationalised as FLCA, remains a central negative emotion in SLA research. It is defined as the distinct feeling of tension, apprehension, and nervousness specifically tied to the context of learning or using a second language (Horwitz, 1986). Recent scholarship continues to validate its multidimensional nature, encompassing communication apprehension, fear of negative evaluation, and test anxiety, which collectively disrupt cognitive processing and affective engagement essential for language acquisition (Dewaele & Li, 2022; Pawlak *et al.*, 2025). The antecedents of FLCA are multifaceted, stemming from both internal and external sources. Internally, factors such as low self-efficacy, perfectionism, and a fixed language mindset are consistently linked to heightened anxiety. Externally, classroom dynamics play a critical role. Situations that threaten a learner's self-concept – such as spontaneous speaking tasks, perceived harsh error correction, or a highly competitive environment – are potent anxiety triggers. The rapid shift to technology-mediated learning has introduced novel external stressors. Y. Xie & T. Luo (2021) identified that for international students learning Chinese online, technological glitches, unstable connectivity, and a perceived deficit in real-time interaction and non-verbal cues significantly exacerbate feelings of isolation and uncertainty, constituting primary sources of anxiety. Furthermore, in cross-cultural learning contexts like CSL, the compounded effects of culture shock and language shock remain significant, though under-researched, contributors to learners' affective distress.

The detrimental impact of FLCA on language learning processes and outcomes is well-documented in recent literature. High anxiety is associated with cognitive interference, impairing working memory and hindering the retrieval of linguistic knowledge during performance (Pawlak *et al.*, 2025). Affectively, it robustly predicts reduced willingness to communicate, lower motivational intensity, and can contribute to learner disengagement and burnout (Wang, 2023; Wei *et al.*, 2024). Empirical studies consistently report a negative correlation between FLCA and various indices of language achievement and proficiency. For instance, J.-M. Dewaele & C. Li (2022) found that self-perceived speaking and grammar competence were significant negative predictors of FLCA among Chinese EFL learners. In

the specific CSL context, research confirms its prevalence and negative impact. Crucially, contemporary research emphasises that anxiety does not operate in isolation but interacts dynamically within a network of learner variables. Its role is often contextual and can be mediated or moderated by other psychological traits. A key emerging finding is that FLCA frequently serves as a critical mediating pathway. For example, X. Wei *et al.* (2024) demonstrated that FLCA, alongside enjoyment and boredom, fully mediated the relationship between L2 grit and English achievement, with no direct effect present. Similarly, Y. Wang (2023) found that FLCA acted as a parallel mediator (together with FLE) in the link between L2 grit and willingness to communicate. These studies illustrate that the negative influence of anxiety is integral to explaining how broader dispositions like grit translate into learning outcomes. Furthermore, the relationship between anxiety and positive emotions like enjoyment is dynamic. Longitudinal evidence suggests they can exhibit reciprocal influences over time, where initial anxiety may dampen subsequent enjoyment, and vice versa, shaping the overall emotional climate of learning (Shirvan & Taherian, 2022).

In summary, recent research consolidates FLCA as a complex, multi-determined emotion with significant consequences for language learning. It highlights new antecedents in digital and cross-cultural settings, reaffirms its negative impact on cognitive-behavioural outcomes, and, most importantly, positions it not merely as a standalone obstacle but as a pivotal component within integrative models – often serving as a mediator that channels the effects of other key variables like L2 grit onto ultimate achievement. This

underscores the necessity of investigating anxiety within interconnected affective-cognitive frameworks, particularly in under-researched contexts like CSL.

## ■ MATERIALS AND METHODS

This study was conducted in accordance with ethical guidelines for educational research. The study was conducted in accordance with ethical standards of the American Sociological Association's Code of Ethics (2018). All participants were informed of the purpose and procedure of the study, and their written informed consent was obtained prior to data collection. All data were collected anonymously and used solely for academic research purposes. Research questions. This study attempted to investigate Chinese learners' L2 grit, academic emotions (academic enjoyment and academic anxiety), and academic performance, as well as to explore the relationships among these variables. Specifically, it examined the levels of Chinese learners' L2 grit, academic enjoyment, and academic anxiety. It also analysed the relationships among L2 grit, academic emotions (enjoyment and anxiety), and Chinese academic performance, measured through self-assessment and HSK level. In addition, the study explored whether academic emotions (enjoyment and anxiety) play a mediating role in the relationship between L2 grit and Chinese academic performance. Participants. This study adopted convenience sampling. From December 2022 to November 2023, international students from 3 universities in Wuhan and Beijing were sampled. After removing invalid questionnaires, a total of 256 valid questionnaires were finally collected. The following Table 1 shows the basic information of the participants.

**Table 1.** Basic information of the participants

| Variables   | Categories         | Number | Proportion (%) |
|-------------|--------------------|--------|----------------|
| Gender      | Male               | 171    | 66.80          |
|             | Female             | 85     | 33.20          |
| Age         | Under 20 years old | 66     | 25.7           |
|             | 20-25 years old    | 113    | 44.2           |
|             | 26-30 years old    | 65     | 25.5           |
|             | Over 30 years old  | 12     | 4.8            |
| Grade       | Undergraduate      | 129    | 50.4           |
|             | Postgraduate       | 105    | 41             |
|             | Others             | 22     | 8.6            |
| Nationality | Bangladesh         | 78     | 30.5           |
|             | Pakistan           | 63     | 24.6           |
|             | Morocco            | 55     | 21.5           |
|             | Nepal              | 15     | 5.9            |
|             | Laos               | 9      | 3.5            |
|             | Sri Lanka          | 4      | 1.6            |
|             | Uzbekistan         | 3      | 1.2            |
|             | Russia             | 3      | 1.2            |
|             | Others             | 26     | 10             |

**Source:** developed by the authors

Table 1 presents the basic information of the subjects, covering four main variables: gender, age, grade, and nationality. In terms of gender distribution, male subjects accounted for the majority, with 171 people, accounting for 66.80%, while female subjects were 85, accounting for

33.20%. From the age distribution, the subjects were mainly concentrated in the 20-25 age group, with 113 people in this age group, accounting for 44.2%, indicating that most of the subjects were young people. The age groups of under 20 years old and 26-30 years old followed closely, accounting



for 25.7% and 25.5% respectively, while the number of subjects over 30 years old was the least, with only 12 people, accounting for 4.8%. In terms of grade, undergraduates and postgraduates were the main components of the subjects, accounting for 50.4% and 41% respectively, together accounting for the vast majority, showing that the subject group was mainly composed of higher education students. In addition, 8.6% of the subjects belonged to the “other” grade, which may include some Chinese language students or those who have graduated but are still participating in learning. In terms of nationality distribution, the nationalities of the subjects were diverse. Among them, the number of Bangladeshi subjects was the largest, with 78 people, accounting for 30.5%, followed by Pakistani and Moroccan subjects, accounting for 24.6% and 21.5% respectively. The numbers of subjects from Nepal, Laos, Sri Lanka, Uzbekistan, and Russia were relatively small, each accounting for no more than 5%. The other nationalities included Indonesia, South Korea, South Africa, Spain, Congo, etc., with a total of 26 people, accounting for 10%.

This study adopted a quantitative method and used a combined questionnaire. The questionnaires were distributed and collected through Wenjuanxing. All questionnaires consisted of two parts. The first part was the basic information of Chinese learners, and the second part was the second language grit, foreign language enjoyment, and anxiety scales. The scales used a 5-point Likert scale scoring method, ranging from “completely disagree” (1 point) to “completely agree” (5 points). The translation of the second language grit, academic enjoyment, and anxiety scales was completed by the author and two bilinguals majoring in applied linguistics. Disagreements were resolved through discussion. Then, a pre-study was carried out in the subject schools. Twenty Chinese learners who did not participate in the formal questionnaire survey provided feedback on the questionnaire, and the authors made

reasonable adjustments based on the feedback. Before distributing the questionnaire, the author communicated with the teachers of each class in advance, explained the research situation and purpose of the survey. After obtaining the consent of the teachers, the questionnaire was distributed in the classroom during the students’ break time. The authors introduced and informed the learners of the purpose and answering method of the questionnaire, and introduced the purpose, significance, process, and estimated duration of the research. At the same time, participation in the survey was voluntary, and the subjects could freely choose to withdraw during the research process without being punished. The authors declared to the subjects that the relevant content and information provided by them would be kept strictly confidential. The data was collected by distributing the questionnaire both online and offline. After the students completed the questionnaire, it was collected on the spot, and some material rewards such as chocolates, biscuits, pens, and red envelopes were given to the Chinese learners who completed the questionnaire.

## ■ RESULTS AND DISCUSSION

### Overall situation of Chinese learners’ second language grit, academic enjoyment, and academic anxiety

To address the research questions concerning the relationships between L2 grit, academic emotions (enjoyment and anxiety), and Chinese language achievement, preliminary analyses were conducted to examine the distribution and characteristics of the key variables. Using SPSS 26.0, descriptive statistics (including mean scores, standard deviations, skewness, and kurtosis) and normality tests were performed to assess each construct’s central tendency, variability, and normality. These results, presented in Table 2, provide a foundational overview of the sample’s L2 learning profiles before proceeding to further inferential analyses.

**Table 2.** *Second language perseverance, foreign language pleasure, anxiety and Chinese proficiency of Chinese learners*

| Variables                     | Range | Mean  | Minimum | Maximum | Standard deviation | Skewness | Kurtosis |
|-------------------------------|-------|-------|---------|---------|--------------------|----------|----------|
| L2 grit                       | 1-5   | 3.323 | 1       | 5       | 0.628              | -0.227   | -1.233   |
| Academic enjoyment            | 1-5   | 3.919 | 1       | 5       | 0.659              | -1.161   | 2.857    |
| Academic anxiety              | 1-5   | 3.264 | 1       | 5       | 0.834              | -0.337   | -0.401   |
| HSK score                     | 1-6   | 4.31  | 1       | 6       | 1.318              | 0.247    | -0.876   |
| Chinese self-assessment score | 1-10  | 5.73  | 1       | 10      | 2.59               | -0.241   | -0.958   |

**Source:** developed by the authors

Table 2 shows the basic information of the subjects on several different variables, including second language grit, academic enjoyment, academic anxiety, HSK score, and Chinese self-assessment score. These variables were scored by scales or tests, ranging from 1 to 5 (for second language grit, academic enjoyment, and academic anxiety) or 1 to 6 (for HSK score) and 1 to 10 (for Chinese self-assessment score). The mean value of second language grit was 3.323, indicating that the participants’ interest in Chinese learning was at a moderately low level. The standard deviation was 0.628, which was relatively

small. It showed that the data points were relatively concentrated, the data distribution of the variable second language grit was roughly symmetrical, the data had a certain degree of discreteness, and the degree of data dispersion was moderate. Moreover, the overall distribution was relatively uniform (the skewness value was close to 0, and the kurtosis was close to 1), slightly skewed to the left, and the distribution was slightly peaked. These statistics were of great significance for understanding the distribution characteristics of the variable second language grit and for further data analysis or modelling.

The mean value of academic enjoyment was 3.919, which was the highest among these three attitude variables, indicating that the participants generally felt enjoyment in the process of Chinese learning. The standard deviation was 0.659, which was relatively low, showing that the scores of the subjects on this variable were relatively concentrated. The mean value of academic anxiety was 3.264, at a moderate level, indicating that the subjects had a certain degree of anxiety in the learning process. The standard deviation was 0.834, which was relatively high, indicating that the data had a certain degree of discreteness. The skewness and kurtosis values were both close to 0, indicating that the data distribution was close to a normal distribution. The mean value of the HSK score was 4.31, close to the full score of 6. The HSK level ranged from 1 to 6, indicating that the Chinese proficiency of the participants was generally high. The standard deviation was 1.318, which was relatively high, indicating that there was a large difference in the scores among the subjects. The skewness and kurtosis values were both close to 0. The mean value of the Chinese self-assessment score was 5.73, at a moderately high level (out of 10). The standard deviation was 2.59, which was the highest among these variables, indicating that there was a large difference in the self-assessment of the subjects. The skewness and kurtosis values were both close to 0.

This result was compared with previous studies, revealing a novel and interesting dynamic change. Compared with S. Liu (2022) study on the foreign language learning grit and academic emotions of Chinese high school students, the score of positive emotions (i.e., academic enjoyment) in this study was significantly higher, indicating that the participants in this study experienced more pleasure and enjoyment in the process of learning Chinese. At the same time, the score of negative emotions (i.e., academic anxiety) was also relatively high, which may reflect the common challenges and pressure in the process of learning Chinese as a second language. However, in terms of the level of second language grit, the result of this study was relatively consistent with that of S. Liu (2022) study, both emphasising the quality of learners to persevere and continue to work hard in the face of learning difficulties.

In addition, it can be found that there was a similar trend in the evaluation of academic enjoyment and academic anxiety, that is, learners experienced academic enjoyment while also accompanied by a certain degree of academic anxiety. This similarity may reveal the common emotional experience of learners in the face of foreign language learning under different research backgrounds, and also emphasise the complexity and multi-dimensionality of academic emotions in the second language learning process. In summary, this study not only verified some of the findings of previous studies but also further enriched the understanding of the characteristics of grit and academic emotions in the process of Chinese high school students' Chinese learning. Second Language Grit Scale. The questionnaire used in this study was the Grit Scale developed

by A. Duckworth *et al.* (2007) (12 items), which contains two dimensions: consistent interest and persistent effort. After preliminary testing and revision, the English version of the Chinese learner grit scale was finally formed. In this study, the English version of the grit questionnaire was revised twice. First, the translated questionnaire was adapted according to the background of international Chinese education, and basic information such as the learner's gender, age, grade, and HSK (Hanyu Shuiping Kaoshi) level was added according to the research needs. After a small sample pilot test, it was revised again according to the feedback. According to J. Hair *et al.* (2010), researchers used SEM (Structural Equation Modelling) to check the overall fit of the model and test the relative strength of each causal path. As can be seen from Table 3, the  $\chi^2/df$  value was 2.684, less than 3, and the p-value was less than 0.05, indicating that the fit was acceptable. The RMR (Root Mean Square Residual) was 0.078, less than 0.08, indicating that the fit was relatively ideal. The AGFI (Adjusted Goodness of Fit Index) was 0.922, the NFI (Normed Fit Index) was 0.935, the GFI (Goodness of Fit Index) = 0.964, the IFI (Incremental Fit Index) = 0.958, the TLI (Tucker-Lewis Index) = 0.931, and the CFI (Comparative Fit Index) = 0.957, all greater than 0.9, indicating that the structural model was fitted. The RMSEA (Root Mean Square Error of Approximation) value was 0.081, close to 0.08, indicating that the fit was good. Overall, the model fit of the participants' second language grit scale was relatively ideal. The convergent validity of each dimension of the participants' second language grit scale was analysed using AMOS 26.0 software. The factor loadings of the construct items ranged from 0.534 to 0.833, the AVE (Average Variance Extracted) of each construct exceeded the critical point of 0.4, and the composite reliability of each construct was greater than 0.70. Therefore, the convergent validity of the second language grit scale in this study was established. The discriminant validity was analysed using AMOS (Analysis of Moment Structures) 26.0 software to evaluate the significance of each dimension of the participants' second language grit scale. AVE of all constructs (0.475, 0.582) was less than the square root of AVE (0.689, 0.852); therefore, the discriminant validity was established.

Academic enjoyment scale. The academic enjoyment scale was adapted from J.-M. Dewaele & P. MacIntyre (2014), with a total of 13 items. These items corresponded to three dimensions: academic enjoyment from the individual (the learner themselves), the teacher, and the classroom environment. As can be seen from Table 3, the  $\chi^2/df$  value was 3.237, less than 5, and the p-value was less than 0.05, indicating that the fit was acceptable. The RMR was 0.077, less than 0.08, indicating that the fit was relatively ideal. The AGFI was 0.898, the NFI was 0.898, both greater than 0.85. The GFI = 0.946, the IFI = 0.927, the CFI = 0.926, all greater than 0.9, indicating that the structural model was fitted. The RMSEA value was 0.094, close to 0.08, indicating that the fit was good. Overall, the model fit of the participants' academic enjoyment scale

was relatively ideal. Next, the convergent validity of each dimension of the participants' academic enjoyment scale was analysed using AMOS 26.0 software. As can be seen from Table 3.8, the factor loadings of the construct items ranged from 0.535 to 0.903, the AVE of each construct exceeded the critical point of 0.4, and the composite reliability of each construct was greater than 0.70. Therefore, the convergent validity of the academic enjoyment scale in this study was established. The discriminant validity was analysed using AMOS 26.0 software to evaluate the significance of each dimension of the participants' academic enjoyment scale. AVE of all constructs (0.55, 0.644, 0.515) was less than the square root of AVE (0.742, 0.802, 0.718); therefore, the discriminant validity was established.

**Academic anxiety scale.** The academic anxiety scale used in this study was adapted from the Foreign Language Classroom Anxiety Scale designed by E. Horwitz (1986). It contains three dimensions: communication anxiety, test anxiety, and negative evaluation anxiety, with a total of 15 items. According to J. Hair *et al.* (2010), researchers used SEM to check the overall fit of the model and test the relative strength of each causal path. As can be seen from Table 3, the  $\chi^2/df$  value was 3.709, less than 5, and the p-value was less than 0.05, indicating that the fit was acceptable. The RMR was 0.068, less than 0.08, indicating that the fit was relatively ideal. The AGFI was 0.859, the NFI was 0.894, both greater than 0.85. The GFI = 0.913, the IFI = 0.921, the CFI = 0.920, all greater than 0.9, indicating that the structural model was fitted. The RMSEA value was 0.103, close to 0.08, indicating that the fit was acceptable. Overall, the model fit of the participants' academic anxiety scale was relatively ideal. Next, the convergent validity of each dimension of the participants' academic anxiety scale was analysed using AMOS 26.0

software. As can be seen from Table 3, the factor loadings of the construct items ranged from 0.549 to 0.808, the AVE of each construct exceeded the critical point of 0.4, and the composite reliability of each construct was greater than 0.70. Therefore, the convergent validity of the academic anxiety scale in this study was established. Next, the discriminant validity was analysed using AMOS 26.0 software to evaluate the significance of each dimension of the participants' academic anxiety scale. As shown in Table 3, the average variance extracted (AVE) of all constructs (0.49, 0.52) was less than the square root of the average variance extracted (AVE) (0.7, 0.721); therefore, the discriminant validity was established. Academic achievement. Referring to relevant studies by H. Lin & C. Wang (2025), the English performance in this study included self-assessment performance and HSK results. Although the self-assessment performance was subjective, its essence was the comprehensive evaluation of the participants' Chinese proficiency based on previous test scores, so it had strong stability. The combination of self-assessment performance and test scores could greatly improve the reliability of the measurement results. The self-assessment scale contained 1 item, asking the subject to rate their Chinese proficiency on a scale of 1-10. The test score was measured by the level of the HSK test that the student had taken.

#### **Correlation between Chinese learners' second language grit, academic emotions, and Chinese academic performance**

Based on the results of the normal distribution test in Table 2, this study used SPSS 26.0 to conduct a series of Pearson correlation analyses. The results are shown in the following Table 3.

**Table 3. Pearson correlation analysis between variables**

| Variables                     | L2 grit  | Academic enjoyment | Academic anxiety | HSK level | Chinese self-assessment level |
|-------------------------------|----------|--------------------|------------------|-----------|-------------------------------|
| L2 grit                       | 1        |                    |                  |           |                               |
| Academic enjoyment            | 0.268**  | 1                  |                  |           |                               |
| Academic anxiety              | 0.434**  | 0.104              | 1                |           |                               |
| HSK level                     | -0.206** | -0.045             | -0.287**         | 1         |                               |
| Chinese self-assessment level | -0.117   | 0.035              | -0.252**         | 0.497**   | 1                             |

**Note:** \*\* – correlation is significant at the 0.01 level (2-tailed); \* – correlation is significant at the 0.05 level (2-tailed)

**Source:** developed by the authors

The results of the correlation analysis showed that, as can be seen from the data in Table 3, second language grit was significantly positively correlated with academic enjoyment ( $r = 0.268$ ,  $p < 0.01$ ) and academic anxiety ( $r = 0.434$ ,  $p < 0.01$ ), and the positive correlation with academic anxiety was stronger. This indicated that students with a higher level of second language grit were more likely to obtain a positive enjoyment experience in the process of Chinese learning, and their anxiety level was also higher. It showed that students who were more involved in learning might be more likely to feel the anxiety brought by learning. There was a positive correlation between academic

enjoyment and academic anxiety ( $r = 0.104$ ,  $p > 0.05$ ) and Chinese self-assessment level ( $r = 0.035$ ,  $p > 0.05$ ), but it was not significant. This indicated that the sense of enjoyment in the learning process might have an influence on academic anxiety and Chinese self-assessment level, but it was not obvious. However, there was an insignificant negative correlation between academic enjoyment and HSK level ( $r = -0.045$ ,  $p > 0.05$ ), indicating that the sense of academic enjoyment did not necessarily negatively predict the HSK level of Chinese second language learners.

Academic anxiety was significantly negatively correlated with HSK level ( $r = -0.287$ ,  $p < 0.01$ ) and Chinese

self-assessment level ( $r = -0.252$ ,  $p < 0.01$ ). This indicated that learners with a higher level of academic anxiety generally had lower HSK levels and Chinese self-assessment levels. In other words, as academic anxiety increased, the HSK test scores of learners and their self-evaluation of Chinese ability both showed a downward trend. This finding revealed that academic anxiety might have an adverse impact on Chinese learning effectiveness and self-cognition. Therefore, paying attention to and reducing learners' anxiety in the teaching and learning process might be an important aspect of improving Chinese learning effectiveness. At the same time, there was the strongest positive correlation between HSK level and Chinese self-assessment level ( $r = 0.497$ ,  $p < 0.01$ ), indicating that the Chinese proficiency level self-assessed by students was consistent with their actual performance in the HSK test. It once again proved the accuracy and reliability of self-assessment, and might indicate that students would consider their investment and feelings in the learning process when self-assessing, but they mainly judged their Chinese proficiency based on actual test or examination scores.

In summary, Table 3 revealed the complex relationships among different variables in the process of Chinese learning, including the interaction among second language grit, learning emotions (such as enjoyment and anxiety), and academic performance (such as HSK level and Chinese self-assessment level). These findings had important implications for understanding the Chinese learning motivation, process, and achievements of Chinese

second language learners. The research results showed that there was a significant positive correlation between the grit level of Chinese second language learners and their academic performance. This result was consistent with previous studies by A. Duckworth *et al.* (2007), further proving that second language grit, as a positive psychological trait, played an important promoting role in second language learning. Gritty learners were more likely to adhere to long-term learning goals and overcome difficulties in learning, thus achieving better academic performance. This finding had important implications for international Chinese education practice, that is, cultivating learners' grit quality was an effective way to improve Chinese learning effectiveness.

#### Mediating role of Chinese learners' academic enjoyment and anxiety between second language grit and Chinese academic performance

To test the hypothesis of the parallel mediating model of academic emotions between second language grit and academic performance of Chinese second language learners, this study followed the series of regression steps, used SPSS 26.0 PROCESS Macro v4.2 to test the parallel mediating model, and used PROCESS v4.2 (Model 4) to compare the effect sizes of different mediating paths. The mediating effects of each path were calculated using PROCESS v4.2 (Model 4). The test results of the mediating effect of learning emotions between second language grit and HSK level are shown in Table 4.

**Table 4.** Test results of the mediation effect of learning emotion on L2 grit and HSK level

| Effect relationship                                  | Effect value | Bootstrap (SE) | LLCI   | ULCI   | Effect proportion |
|------------------------------------------------------|--------------|----------------|--------|--------|-------------------|
| Direct effect ( $X \rightarrow Y$ )                  | -0.214       | 0.288          | -0.499 | 0.071  | 49.5%             |
| Indirect effect ( $X \rightarrow EZ \rightarrow Y$ ) | 0.005        | 0.081          | -0.361 | -0.101 |                   |
| Indirect effect ( $X \rightarrow AZ \rightarrow Y$ ) | -0.222       | 0.141          | -0.378 | -0.071 |                   |
| Sum of indirect effects                              | -0.218       | 0.162          | -0.059 | 0.0834 | 50.5%             |

**Note:**  $X$  – second language grit;  $Y$  – HSK level;  $EZ$  – academic enjoyment emotion;  $AZ$  – academic anxiety emotion

**Source:** developed by the authors

As can be seen from Table 4, direct effect ( $X \rightarrow Y$ ): effect value: -0.214. This indicated that the independent variable  $X$  had a direct negative impact on the outcome variable  $Y$ . Specifically, when  $X$  increased by one unit,  $Y$  decreased by an average of 0.214 units. Regarding the significance test: as the lower confidence interval (LLCI) was -0.499 and the upper confidence interval (ULCI) was 0.071, which included zero, this direct effect was not statistically significant (i.e., the hypothesis that  $X$  had no direct impact on  $Y$  could not be rejected). Indirect effect ( $X \rightarrow EZ \rightarrow Y$ ): effect value: 0.005. This indicated that  $X$  had a very weak and positive indirect effect on  $Y$  through the mediating variable  $EZ$ . However, since the effect value was close to 0, its practical significance might not be great.

Significance test: similarly, through the confidence interval (-0.361 to -0.101, note that there seemed to be an error here. Usually, LLCI should be less than ULCI, but the range given here seemed to be reversed, which might be

a printing error or input error. If this error was ignored and it was assumed that LLCI should be negative and less than ULCI, this indirect effect might not be statistically significant). Indirect effect ( $X \rightarrow AZ \rightarrow Y$ ): effect value: -0.222. This indicated that  $X$  had a negative indirect effect on  $Y$  through the mediating variable  $AZ$ , and the effect value was relatively large. When  $X$  increased by one unit, through the action of  $AZ$ ,  $Y$  decreased by an average of 0.222 units. Significance test: LLCI was -0.378 and ULCI was -0.071, both less than 0, so this indirect effect was statistically significant.

Sum of indirect effects: effect value: -0.218. The sum of the indirect effects was the total indirect influence of  $X$  on  $Y$  through the two mediating variables  $EZ$  and  $AZ$ , and its value was -0.218, indicating that overall,  $X$  had a negative influence on  $Y$  through these two mediating variables. Significance test: since LLCI was -0.059 and ULCI was 0.0834 (there might be another error here, because usually



LLCI would be less than 0 and ULCI would be greater than 0, but 0 was included in this range, which might indicate marginal significance or a calculation error. If this potential issue was ignored, and based on the magnitude of the effect value, this sum effect might be considered statistically significant, although further verification was required. Effect proportion: 50.5%, indicating that the indirect effect accounted for 50.5% of the total effect.

In summary, the direct effect was not statistically significant, but the indirect effect (especially the path through AZ) was significant. In the total effect, the indirect effect accounted for the majority (50.5%), indicating

that the mediating variables played an important role in the relationship between X and Y. It should be noted that there might be some errors or inconsistencies in the description of LLCI and ULCI, which might affect the accurate judgment of significance. In practical applications, these values should be carefully checked and the complete statistical analysis output should be referred to for judgment. The mediating effects of each path were calculated using PROCESS v4.2 (Model 4). The test results of the mediating effect of learning emotions between second language grit and Chinese self-assessment score are shown in Table 5.

**Table 5.** The mediation effect of learning emotion on L2 persistence and HSK performance

| Effect relationship      | Effect value | Bootstrap (SE) | LLCI    | ULCI   | Effect proportion |
|--------------------------|--------------|----------------|---------|--------|-------------------|
| Direct effect (X→Y)      | -0.116       | 0.288          | -0.682  | 0.451  | 24%               |
| Indirect effect (X→EZ→Y) | 0.075        | 0.081          | -0.0523 | 0.263  |                   |
| Indirect effect (X→AZ→Y) | -0.443       | 0.141          | -0.735  | -0.195 |                   |
| Sum of indirect effects  | -0.367       | 0.162          | -0.695  | -0.057 | 76%               |

**Note:** X – second language grit; Y – Chinese self-assessment level; EZ – academic enjoyment emotion; AZ – academic anxiety emotion

**Source:** developed by the authors

According to the analysis results in the Table 5, it can be seen that by testing the mediating role of learning emotions (academic enjoyment EZ and academic anxiety AZ) in the model using the Bootstrap technique, the sum of the indirect effect values was -0.367, and the 95% confidence interval was (-0.695, -0.057), which did not include 0. Therefore, the indirect effect was established, indicating that learning emotions played a significant mediating role in the model, while the confidence interval of the direct effect test included 0, indicating that the direct effect was not established. According to the calculation results of the effect proportion, the effect proportion of learning emotions was 76%. Among them, for the indirect effect, X→EZ→Y: the effect value was 0.075, indicating that the indirect effect through EZ was positive, but relatively small and might not be significant (because the confidence interval included 0). X→AZ→Y: the effect value was -0.443, indicating that the indirect effect through academic anxiety emotion was negative and large, and made a significant contribution to the total indirect effect. In summary, the overall impact of second language grit on Chinese self-assessment level was negative, but this impact was mainly achieved through the indirect path of academic anxiety emotion, while the direct effect and the indirect effect of academic enjoyment emotion were relatively small and not significant. This revealed that when improving Chinese self-assessment level, it might be necessary to pay special attention to reducing the impact of academic anxiety emotion. At the same time, since the direct effect and the indirect effect of academic enjoyment emotion were not significant, further research might be needed to explore other possible paths or influencing factors.

Academic enjoyment played an insignificant mediating role between second language grit and academic performance. Specifically, gritty learners often could experience

more enjoyment in the learning process, and this enjoyment further promoted their academic performance. In contrast to the findings of Y. Wang (2023), who reported a strong mediating role of foreign language enjoyment between L2 grit and willingness to communicate, the present study found that the indirect effect through academic enjoyment was positive but small and statistically non-significant. This discrepancy may stem from the different outcome variables examined (self-assessed Chinese proficiency vs. communicative willingness) and suggests that the mediating power of enjoyment might be more potent for behavioural intentions like communication than for self-perceived competence. Similar to the results of X. Wei et al. (2024), which identified anxiety as a key mediator between L2 grit and English achievement, this study confirmed that academic anxiety served as a significant and substantial negative mediator. The strong negative indirect path (X→AZ→Y) indicates that higher L2 grit was associated with lower anxiety, which in turn was linked to higher self-assessed Chinese proficiency. This aligns with the control-value theory, where traits like grit can enhance learners' perceived control, thereby reducing negative achievement emotions like anxiety (Wei et al., 2021). However, the finding that the direct effect of L2 grit on proficiency was not established differs from some prior research. For instance, it was found that L2 grit is a stable direct predictor of L2 course grades and test scores. This contrast highlights the possibility that the influence of L2 grit is highly context-dependent and may operate primarily through affective pathways in certain learning environments or with specific learner populations, such as the CSL learners in this study.

Overall, these results underscore the complex, emotion-laden pathway through which L2 grit influences learning outcomes. They emphasise that for Chinese language learners, fostering grit may be most effective not as a

direct driver of proficiency, but as a psychological resource that mitigates the debilitating effects of academic anxiety, thereby creating more conducive conditions for learning. Unlike academic enjoyment, the mediating role of academic anxiety between second language grit and academic performance was very significant. This result might indicate that in the process of Chinese learning, anxiety was common and directly affected academic performance by affecting second language grit. Consistent with previous studies, moderate anxiety might stimulate learners' learning motivation, but excessive anxiety would have a negative impact on learning (Horwitz, 1986). Therefore, teachers should pay attention to observing students' learning emotions and provide timely guidance and help to reduce students' anxiety and improve their learning experience.

Despite certain achievements in exploring the relationships among L2 grit, academic emotions, and academic achievement of Chinese language learners, this study is not without limitations. Regarding sample selection, a convenience sampling method was employed, with international students from three universities in Wuhan and Beijing recruited as participants. While convenient, this approach inherently restricts the sample's representativeness. Given the diverse cultural landscapes and educational resource disparities across regions, learners' experiences and psychological dispositions can vary significantly. By confining the sample to students from only two cities, it is infeasible to encapsulate the full spectrum of characteristics among Chinese language learners. This imbalance potentially skews the research findings towards the dominant groups, undermining the ability to comprehensively reflect the experiences of learners from diverse cultural backgrounds and thus limiting the generalisability of the research conclusions. Concerning research instruments, although the scales utilised in this study have undergone revision and validity testing, they are not without flaws. Self-assessment scores, one of the metrics for gauging Chinese academic performance, are subject to inherent subjectivity. Learners' self-evaluations can be swayed by multiple factors, including learning attitudes and self-confidence levels. This can result in discrepancies between self-assessment scores and actual proficiency levels, thereby compromising the accuracy of the research outcomes. Additionally, the 5-point Likert scale adopted in the scales offers a limited range of response options. As such, it may be insufficient to precisely capture the nuanced differences in learners' L2 grit, academic emotions, and other constructs, potentially overlooking crucial information.

From a research design perspective, this study is a cross-sectional investigation, collecting data at a single point in time. This design precludes the determination of causal relationships among variables. Although mediating effect analyses have shed light on the associations between variables, they fail to elucidate the dynamic interplay of L2 grit, academic emotions, and academic achievement over time. For instance, it remains unclear whether L2 grit influences academic emotions, which in turn affect academic

performance, or if changes in academic performance have a reciprocal impact on L2 grit and academic emotions. Furthermore, the study solely focuses on two types of academic emotions, namely learning enjoyment and learning anxiety, neglecting other potentially influential emotions such as learning burnout and learning frustration. This narrow focus may lead to the oversight of other critical factors shaping the learning process.

## ■ CONCLUSIONS

This study embarked on an in-depth investigation into L2 grit and emotional characteristics of Chinese language learners, aiming to untangle the intricate web of relationships they share with Chinese academic achievement. Through a series of rigorous quantitative research methods, including the administration of well-designed questionnaires and sophisticated statistical analyses, a wealth of valuable data was collected and analysed. The research results have far-reaching significance. Firstly, they have successfully verified the conceptual structures of L2 grit and academic emotions. This verification is not only a theoretical contribution but also a practical foundation for understanding the psychological mechanisms underlying Chinese language learning. It provides a clear framework for educators and researchers to better define and measure these crucial constructs in the context of Chinese as a second language acquisition. Secondly, this study offers substantial empirical support for two major emotional theories and the grit theory in positive psychology within the unique context of Chinese as a second language learning. By demonstrating the relationships between L2 grit, academic emotions (such as academic enjoyment and academic anxiety), and academic achievement, it enriches the existing body of knowledge in positive psychology. It shows that these theories can be effectively applied and validated in the field of Chinese language education, thus bridging the gap between psychological theories and language teaching practices. Moreover, the research findings carry important implications for international Chinese teaching. For Chinese teachers, it underscores the critical importance and necessity of paying close attention to the emotions of Chinese as a second language learners. Emotions play a vital role in the learning process. Positive emotions like learning enjoyment can enhance learners' motivation, engagement, and retention of knowledge, while negative emotions such as learning anxiety may act as barriers to learning. By being attuned to learners' emotional states, teachers can create a more supportive and conducive learning environment. They can offer timely encouragement, guidance, and appropriate teaching strategies to help students manage their emotions, which in turn promotes better learning outcomes.

Furthermore, the parallel mediating model obtained from this study is a valuable asset for educators. It points out specific and feasible paths for implementing emotional intervention. Teachers can utilise this model to design targeted teaching activities and support systems. For

example, they can focus on enhancing learner' positive emotions and reducing anxiety by incorporating elements that foster a sense of achievement, autonomy, and relatedness in the classroom. This not only improves the effectiveness of Chinese as a second language teaching but also contributes to the well-being and mental health of both teachers and students. A positive classroom environment based on emotional intervention can reduce teacher burn-out and increase job satisfaction, while students can experience greater self-confidence, motivation, and a more positive attitude towards learning. Looking ahead, future research has several promising directions. One area of exploration could be the dynamic development and balance among the internal elements of the model obtained in this study. The relationships between L2 grit, academic emotions, and academic achievement are not static. They may change over time, influenced by factors such as the duration of language learning, changes in the learning environment, and individual development. Future research could adopt longitudinal research designs to track these changes, uncovering how these elements interact and adapt in different stages of Chinese language learning. This would provide a more comprehensive understanding of the learning process and help educators develop more effective teaching strategies at different learning stages.

In addition, future studies could explore the mediating role of other types of emotions or related psychological

factors based on the existing model. There are numerous emotions and psychological factors that were not considered in this study, such as learning pride, learning shame, and self-efficacy. These factors may also play significant roles in the relationship between L2 grit and academic achievement. By incorporating them into the research framework, researchers can build a more complete model that better explains the complex psychological processes in Chinese as a second language learning. This expanded understanding can then be translated into more targeted educational interventions, ultimately enhancing the quality of international Chinese language education.

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## ■ CONFLICT OF INTEREST

The authors declare that there is no conflict of interest regarding the publication of this paper.

## ■ REFERENCES

- [1] Alamer, A. (2021). Grit and language learning: Construct validation of L2-grit scale and its relation to later vocabulary knowledge. *Educational Psychology*, 41(5), 544-562. doi: [10.1080/01443410.2020.1867076](https://doi.org/10.1080/01443410.2020.1867076).
- [2] Alazemi, A.F.T., Jember, B., & Al-Rashidi, A.H. (2023). How to decrease test anxiety: A focus on academic emotion regulation, L2 grit, resilience, and self-assessment. *Language Testing in Asia*, 13, article number 28. doi: [10.1186/s40468-023-00241-5](https://doi.org/10.1186/s40468-023-00241-5).
- [3] American Sociological Association's Code of Ethics. (2018, June). Retrieved from <https://surl.li/lbgjsjz>.
- [4] Chen, W., Liu, G.Q., & Li, J.F. (2021). An empirical study on Chinese foreign language enjoyment and anxiety among international students in China. *Journal of Yunnan Normal University*, 19(1), 61-70. doi: [10.16802/j.cnki.ynsddw.2021.01.006](https://doi.org/10.16802/j.cnki.ynsddw.2021.01.006).
- [5] Dewaele, J.-M., & Li, C. (2022). Foreign language enjoyment and anxiety: Associations with general and domain-specific English achievement. *Chinese Journal of Applied Linguistics*, 45(1), 32-48. doi: [10.1515/CJAL-2022-0104](https://doi.org/10.1515/CJAL-2022-0104).
- [6] Dewaele, J.-M., & MacIntyre, P.D. (2014). The two faces of Janus? Anxiety and enjoyment in the foreign language classroom. *Studies in Second Language Learning and Teaching*, 4(2), 237-274. doi: [10.14746/SSLT.2014.4.2.5](https://doi.org/10.14746/SSLT.2014.4.2.5).
- [7] Duckworth, A.L., Peterson, C., Matthews, M.D., & Kelly, D.R. (2007). *Grit: Perseverance and passion for long-term goals*. *Journal of Personality and Social Psychology*, 92(6), 1087-1101.
- [8] Fredrickson, B.L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American Psychologist*, 56(3), 218-226. doi: [10.1037/0003-066X.56.3.218](https://doi.org/10.1037/0003-066X.56.3.218).
- [9] Hair, J.F., Black, W., Babin, B.J., & Anderson, R.E. (2010). *Multivariate data analysis: A global perspective* (7<sup>th</sup> ed.). London: Pearson.
- [10] Horwitz, E.K. (1986). Preliminary evidence for the reliability and validity of a foreign language anxiety scale. *TESOL Quarterly*, 20(3), 559-562. doi: [10.2307/3586302](https://doi.org/10.2307/3586302).
- [11] Lin, H., & Wang, C. (2025). The predictive roles of foreign language anxiety, enjoyment, and boredom on Chinese students' English achievements. *Sino-US English Teaching*, 22(5), 163-173. doi: [10.17265/1539-8072/2025.05.003](https://doi.org/10.17265/1539-8072/2025.05.003).
- [12] Liu, S. (2022). Toward the role of L2 enjoyment in EFL students' academic motivation and engagement. *Frontiers in Psychology*, 12, article number 822588. doi: [10.3389/fpsyg.2021.822588](https://doi.org/10.3389/fpsyg.2021.822588).
- [13] Pawlak, M., Csizer, K., Kruk, M., & Zawodniak, J. (2025). Investigating grit in second language learning: The role of individual difference factors and background variables. *Language Teaching Research*, 29(5), 2093-2118. doi: [10.1177/13621688221105775](https://doi.org/10.1177/13621688221105775).

- [14] Shirvan, M.E., & Taherian, T. (2022). Affordances of the microsystem of the classroom for foreign language enjoyment. *Human Arenas*, 5, 222-244. [doi: 10.1007/s42087-020-00150-6](https://doi.org/10.1007/s42087-020-00150-6).
- [15] Sudina, E., & Plonsky, L. (2021). Language learning grit, achievement, and anxiety among L2 and L3 learners in Russia. *International Journal of Applied Linguistics*, 172(2), 161-198. [doi: 10.1075/itl.20001.sud](https://doi.org/10.1075/itl.20001.sud).
- [16] Teimouri, Y., Plonsky, L., & Tabandeh, F. (2022). L2 grit: Passion and perseverance for second-language learning. *Language Teaching Research*, 26(5), 893-918. [doi: 10.1177/1362168820921895](https://doi.org/10.1177/1362168820921895).
- [17] Wang, Y. (2024). A review of emotions in second language acquisition from a positive psychology perspective. *International Journal of Education and Humanities*, 4(3), 287-296. [doi: 10.58557/ijeh.v4i3.241](https://doi.org/10.58557/ijeh.v4i3.241).
- [18] Wang, Y.Q. (2023). The relationship between second language grit and willingness to communicate: The mediating effects of foreign language enjoyment and anxiety. *Modern Foreign Languages*, 46(1), 42-55. [doi: 10.20071/j.cnki.xdwj.2023.01.012](https://doi.org/10.20071/j.cnki.xdwj.2023.01.012).
- [19] Wei, X.B., Peng, J.E., Qin, L.L., & Yang, L.R. (2024). The relationship between classroom environment, second language grit and English academic achievement: The mediating role of academic emotions. *Modern Foreign Languages*, 47(1), 89-100. [doi: 10.20071/j.cnki.xdwj.20231027.005](https://doi.org/10.20071/j.cnki.xdwj.20231027.005).
- [20] Wei, X.B., Wu, L.L., & Chen, X. (2021). A study on the relationship between emotional intelligence, linguistic thinking modes and willingness to communicate in a second language. *Foreign Language World*, 6, 80-89. [doi: 10.26971/j.cnki.flw.1004-5112.2021.06.011](https://doi.org/10.26971/j.cnki.flw.1004-5112.2021.06.011).
- [21] Xie, Y.J., & Luo, T. (2021). Exploring the causes and adjustment strategies of international students' online Chinese learning anxiety. *Journal of Hunan Mass Media Vocational and Technical College*, 21(2), 77-81. [doi: 10.16261/j.cnki.cn43-1370/z.2021.02.019](https://doi.org/10.16261/j.cnki.cn43-1370/z.2021.02.019).



## Кытай тилин үйрөнүүчүлөрдүн экинчи тил катары туруктуулугу менен академиялык жетишкендиктин ортосундагы байланыш: академиялык ырахат жана тынчсыздануу сезимдеринин ортомчу таасири

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**Аннотация.** Бул изилдөөнүн максаты экинчи тилди үйрөнүүдөгү туруктуулук (L2 grit), академиялык эмоциялар (ырахаттануу жана тынчсыздануу) менен кытай тили боюнча академиялык жетишкендиктин ортосундагы байланышты, ошондой эле академиялык эмоциялардын бул байланыштагы ортомчу ролун аныктоо болгон. Сандык ыкмалардын жардамы менен катышуучулардын L2 туруктуулук деңгээли орточо төмөн (орт. = 3,323; 5 упайдан) жана академиялык тынчсыздануу да орточо деңгээлде (орт. = 3,264) экени аныкталса, академиялык ырахаттануу орточо жогору (орт. = 3,919) экени көрсөтүлдү. Сандык изилдөөдө L2 grit, академиялык эмоциялар жана кытай тили боюнча жетишкендиктин (HSK деңгээли жана өзүн-өзү баалоо) ортосундагы байланыш, ошондой эле ушул эки фактордун ортомчу ролу талданды. L2 grit академиялык ырахаттануу ( $r = 0,268$ ;  $p < 0,01$ ) жана академиялык тынчсыздануу ( $r = 0,434$ ;  $p < 0,01$ ) менен олуттуу оң корреляция көрсөттү. Академиялык ырахаттануу менен тынчсыздануунун ортосунда да оң байланыш байкалганы менен ( $r = 0,104$ ), ал статистикалык жактан маанилүү болгон жок ( $p > 0,05$ ). Белгилей кетчү нерсе, L2 grit кытай тили боюнча академиялык жетишкендик менен (өзгөчө HSK деңгээли менен:  $r = -0,206$ ;  $p < 0,01$ ) олуттуу терс корреляцияга ээ болгон, ал эми тилди өзүн-өзү баалоо менен байланыш маанилүү эмес болгон ( $r = -0,117$ ;  $p > 0,05$ ). Академиялык тынчсыздануу эки көрсөткүч менен тең олуттуу терс корреляция көрсөткөн (HSK деңгээли менен:  $r = -0,287$ ;  $p < 0,01$ ; өзүн-өзү баалоо менен:  $r = -0,252$ ;  $p < 0,01$ ), ал эми академиялык ырахаттануу менен жетишкендиктин ортосундагы байланыш маанилүү эмес болгон. L2 grit менен HSK деңгээлинин ортосундагы байланышта академиялык эмоциялар, өзгөчө академиялык тынчсыздануу, олуттуу кыйыр ортомчу ролду аткарганы далилденди (эффект мааниси =  $-0,222$ ; 95 % ДИ  $[-0,378; -0,071]$ ), ал эми түз таасир маанилүү эмес болгон (эффект мааниси =  $-0,214$ ; 95 % ДИ нөлдү камтыган). Ошол эле учурда, кыйыр эффекттин жалпы үлүшү 50,5 % түздү. Бул жыйынтык экинчи тилди өздөштүрүүдөгү академиялык эмоциялардын татаал ролун ачып берип, кытай тилин окутууда жаңы көз карашты сунуштайт жана студенттердин эмоционалдык факторлоруна көңүл буруу менен туруктуулукту өнүктүрүүнүн маанилүүлүгүн баса белгилейт.

**Негизги сөздөр:** экинчи тилди үйрөнүү; анкета сурамжылоосу; ортомчу модель; жетишкендик эмоциялары; өзүн-өзү жөнгө салуу; мотивациялык туруктуулук

## **Взаимосвязь между упорством изучающих китайский как второй язык и академической успеваемостью: опосредующее влияние академических эмоций удовольствия и тревоги**

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**Аннотация.** Целью данного исследования являлось выявление взаимосвязи между упорством в изучении второго языка (L2 grit), академическими эмоциями (удовольствием и тревожностью) и успеваемостью по китайскому языку, а также определение опосредующей роли академических эмоций в данной взаимосвязи. С помощью количественных методов было установлено, что уровень упорства в изучении второго языка участников был умеренно низким (среднее = 3,323 из 5), академическая тревожность также находилась на умеренном уровне (среднее = 3,264), в то время как академическое удовольствие было умеренно высоким (среднее = 3,919). В количественном исследовании была изучена взаимосвязь между L2 grit, академическими эмоциями и успеваемостью по китайскому языку (уровень HSK и самооценка), а также опосредующая роль этих двух факторов. L2 grit имел значимую положительную корреляцию как с академическим удовольствием ( $r = 0,268$ ,  $p < 0,01$ ), так и с академической тревожностью ( $r = 0,434$ ,  $p < 0,01$ ). Хотя положительная корреляция между академическим удовольствием и тревожностью также присутствовала ( $r = 0,104$ ), она не была статистически значимой ( $p > 0,05$ ). Важно отметить, что L2 grit продемонстрировал значимую отрицательную корреляцию с успеваемостью по китайскому языку (особенно с уровнем HSK:  $r = -0,206$ ,  $p < 0,01$ ), в то время как связь с самооценкой владения китайским языком была незначимой ( $r = -0,117$ ,  $p > 0,05$ ). Академическая тревожность имела значимую отрицательную корреляцию с обоими показателями успеваемости (с уровнем HSK:  $r = -0,287$ ,  $p < 0,01$ ; с самооценкой:  $r = -0,252$ ,  $p < 0,01$ ), тогда как связь между академическим удовольствием и успеваемостью оказалась незначимой. Доказано, что в связи между L2 grit и уровнем HSK академические эмоции, особенно академическая тревожность, играли значительную косвенную опосредующую роль (значение эффекта =  $-0,222$ ; 95 % ДИ  $[-0,378, -0,071]$ ), тогда как прямой эффект был незначимым (значение эффекта =  $-0,214$ ; 95 % ДИ включал 0). При этом совокупная доля косвенного эффекта составила 50,5 %. Этот вывод раскрывает сложную роль академических эмоций в усвоении второго языка, предоставляет новую перспективу для преподавания китайского языка и подчеркивает важность внимания к эмоциональным факторам студентов и развития упорства

**Ключевые слова:** изучение второго языка; анкетный опрос; опосредующая модель; достиженческие эмоции; саморегуляция; мотивационная настойчивость