

# Academic English Writing Anxiety Among High-Pressure Chinese Research University Students: Validation of the Second Language Writing Anxiety Inventory

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## ABSTRACT:

This study aims to examine the factor structure, reliability, and validity of the Second Language Writing Anxiety Inventory (SLWAI) among undergraduate students experiencing high academic pressure at research universities in China. A sample of 344 undergraduate students from Peking University was used, and exploratory and confirmatory factor analyses were conducted. The EFA yielded three factors: cognitive anxiety (8 items), somatic anxiety (7 items), and avoidance behaviors (7 items), fully consistent with Cheng's (2004) original three-factor model. The total scale demonstrated a Cronbach's  $\alpha$  of 0.914, while the subscales ranged from 0.905 to 0.918. CFA results indicated a well-fitting model ( $\chi^2/df = 2.361$ , RMSEA = 0.063, CFI = 0.938, TLI = 0.931), with both convergent and discriminant validity meeting psychometric standards. The SLWAI shows strong reliability and validity for measuring academic English writing anxiety among Chinese university students under high academic pressure and can serve as an effective assessment tool for this population. This study reveals the unique impact pathway of highly competitive academic environments as an "environmental special need," providing empirical support for related research in special education.

**Keywords:** Academic English Writing Anxiety, SLWAI, Reliability and Validity Test Factor Structure, High-Achieving Students Under Academic Stress.

## 1. Introduction

### 1.1 Academic English Writing in a High-Academic-Pressure Environment

With the development of internationalized education, English for Academic Purposes (EAP) writing skills have become an essential academic competency for Chinese university students, particularly those at research-oriented institutions. These students not only need to complete coursework assignments and academic reports

but also face diverse demands such as graduate school recommendations, international exchanges, and academic publications. In this context, English writing has evolved from a mere language learning task into a crucial ability closely tied to academic evaluation, future career prospects, and scholarly competition.

Academic English writing requires learners to simultaneously manage multiple tasks, including linguistic accuracy, logical organization, academic conventions, and creative expression, and is

regarded as a highly complex cognitive activity (Yang et al., 2025). For Chinese university students learning English as a foreign language (EFL), such writing tasks are often accompanied by high levels of psychological pressure and evaluation anxiety. Existing research indicates that English writing anxiety is widespread among Chinese college students, and this anxiety negatively affects their writing performance, self-efficacy, and engagement in learning.

It is worth noting that an increasing number of studies suggest that English writing anxiety is not a completely stable and universally consistent psychological construct, but may be influenced by educational environments, learning tasks, and sociocultural contexts. In highly competitive academic settings, students' writing anxiety may be more focused on evaluation sensitivity, academic performance, and pressures related to future development. Therefore, it is necessary to further examine the structural validity of existing English writing anxiety scales within specific academic contexts, in order to gain a more accurate understanding of the characteristics of academic English writing anxiety among students at research-oriented universities in China.

As the importance of academic English writing in specific high-demand educational contexts continues to grow, some students may exhibit significant deviations from typical language learners in terms of cognitive load, evaluation anxiety, and academic motivation. These students constitute a special group that requires both theoretical attention and practical educational support.

## **1.2 Challenges in Academic English Writing for Research Universities in China**

EAP writing not only requires learners to demonstrate linguistic accuracy, but also demands the simultaneous handling of multiple tasks such as academic expression, logical organization, textual structure, and academic conventions, making it one of the most complex skills in English language learning (Kasiri & Fazilatfar, 2016). Existing research indicates that second language learners commonly face high cognitive load and linguistic pressure during academic English writing, particularly encountering difficulties across various

dimensions including vocabulary use, syntactic complexity, cohesion, language norms, text organization, and logical argumentation—challenges that further increase learners' cognitive burden and psychological stress (Al-Khulaidi & Abdulkhalek, 2022; Gao, 2020; Kasiri & Fazilatfar, 2016). However, this multidimensional cognitive load is especially pronounced among Chinese university students learning English as a foreign language (EFL).

For Chinese university students studying in English as a Foreign Language (EFL) environments, academic English writing often comes with significant linguistic and psychological pressure. Particularly in research-oriented universities, students must not only complete course papers, academic reports, and English writing assignments, but may also face multiple demands such as postgraduate entrance exams, overseas study applications, and academic paper publications. In this context, English writing has evolved beyond merely a language learning task; it is increasingly becoming a crucial benchmark for academic evaluation, future development, and scholarly competition.

Gao (2020) found in a comparative study assessing the academic writing abilities and course needs of EFL students from China and the United States that, compared to general English writing, academic English writing requires learners not only to possess grammatical, lexical, and organizational skills but also to master academic expression conventions, logical argumentation methods, and formal academic register. This indicates that insufficient language proficiency, unfamiliarity with academic norms, and the cognitive load imposed by highly complex writing tasks further increase the challenges associated with academic English writing.

These linguistic and cognitive challenges often increase the difficulty of writing tasks for learners, leading to persistent writing anxiety. Existing research has shown that English writing anxiety undermines learners' writing performance, confidence, cognitive engagement, and academic involvement, manifesting specifically in areas such as academic vocabulary, grammar, reading scholarly literature, genre awareness, rhetorical writing skills, and mastery of academic

conventions (Waked et al., 2024; Wu & Halim, 2024; Zhao, 2024). Zhao (2024) points out that current studies on second language writing feedback primarily focus on feedback forms and types, while paying less attention to teaching contexts and learners' writing needs. A case study of doctoral students at a university English writing center revealed that teachers' professional backgrounds, academic experience, and mentoring approaches significantly influence students' level of engagement with feedback and its effectiveness.

Moreover, in high-demand academic English writing environments, complex writing tasks and ongoing evaluation pressures may further intensify learners' anxiety levels and affect their cognitive resource allocation and writing quality (Xue et al., 2023; Wu & Halim, 2024). Students at research universities not only need to complete semester-long academic papers, research reports, and English writing assignments within limited timeframes and according to academic standards, but also face pressures from teacher evaluations, peer comparisons, and academic performance expectations, as well as external demands such as graduate school recommendations, overseas study opportunities, further education, and academic publication. These factors including time constraints, assessment mechanisms, and pressure related to advancement—can all heighten students' writing anxiety, which may be further amplified in demanding academic English contexts. In summary, academic English writing in research universities involves multiple cognitive and emotional challenges. Therefore, accurately identifying and measuring college students' English writing anxiety is crucial for understanding their learning psychology and improving teaching practices.

### 1.3 Existing Writing Anxiety Measurement Tools and Their Limitations

At present, one of the most widely used measurement tools in the field of Second Language Writing Anxiety is the Second Language Writing Anxiety Inventory (SLWAI). This scale was developed by Cheng (2004), consisting of 22 items. It has good reliability and validity and is widely used in the research of second language writing anxiety in different

countries and language learning situations. The scale mainly includes the following three dimensions: (1) Cognitive Anxiety, which is mainly manifested as learners' concerns about evaluations, grades and others' opinions; (2) Somatic Anxiety, mainly manifested as physiological reactions such as tension, accelerated heartbeat and sweating; (3) Avoidance Behavior, mainly reflects learners' tendency to avoid English writing activities.

However, existing research suggests that the factor structure of the scale may be influenced by cultural background, educational context, and learning situations. Learners from different countries and groups may experience and express English writing anxiety in distinct ways. For instance, the three-factor structure of the SLWAI was validated among Indonesian university students, with cognitive anxiety emerging as the most prominent dimension (Kusumaningputri et al., 2018). Yet cross-cultural comparisons have also revealed significant variations: for example, Waked et al. (2024) found that the original "avoidance behavior" dimension was not sufficiently supported among female university students in Saudi Arabia, while cognitive anxiety further split into two sub-dimensions related to evaluation pressure and language proficiency. Additionally, qualitative studies on Chinese EFL learners revealed higher levels of cognitive anxiety but relatively less avoidance behavior (Yu and Zhou, 2022); in English story-writing tasks, the factor structure of the SLWAI also required task-specific adaptations (Cheng et al., 2024). These findings indicate that the factor structure of the SLWAI may vary across different populations and task contexts, necessitating re-evaluation of its applicability based on specific research participants and settings.

It is worth noting that the SLWAI was originally developed and validated among English-major undergraduate students in Taiwan, with its original structure primarily shaped by specific educational and linguistic contexts. As academic English writing demands continue to rise in Chinese research universities, students face increasing pressure in English writing for course assignments, academic presentations, research training, and competitive admissions. Against this backdrop, students at Chinese research

universities may place greater emphasis on evaluation outcomes, academic performance, and peer comparisons. However, whether the original three-factor structure of the SLWAI remains stable and applicable within China's cultural and educational environment still requires further validation. Currently, research targeting Chinese university students under high academic pressure remains limited, and the structural validity of existing scales in this population has yet to be sufficiently established.

#### 1.4 Research Objectives

This study is situated at the intersection of special education and learning psychology, focusing on undergraduate students at Peking University as a population experiencing high academic pressure. It aims to examine the structural applicability, reliability, and validity of the Second Language Writing Anxiety Inventory (SLWAI) within this group. Specifically, the study employs a combined approach of exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) to assess the latent factor structure of the SLWAI, and to validate its structural stability, construct validity, and internal consistency. The findings will contribute to a deeper understanding of English writing anxiety characteristics among Chinese university students under high academic pressure, reveal unique dimensions of writing anxiety in this population, and provide insights for future teaching practices and psychological measurement research.

Given the previously reported differences in scale structure across contexts, the applicability of the original three-factor structure of the SLWAI to Chinese students under high academic pressure remains to be empirically tested. Therefore, this study aims to validate the structural adequacy of the SLWAI in this population and examine its psychometric properties.

#### 1.5 Research Questions

RQ1: What is the potential factor structure of SLWAI among Chinese college students?

RQ2: Does the SLWAI demonstrate satisfactory structural stability and structural validity among Chinese college students?

RQ3: Does SLWAI demonstrate satisfactory reliability?

## 2. Methodology

### 2.1 Participant

The final effective sample for this study consisted of 344 undergraduate students currently enrolled at Peking University. Due to technical limitations in questionnaire design, the scale did not include demographic information, making it impossible to examine measurement invariance across different demographic groups. It should be noted that factor structure validation primarily relies on covariation among variables and is not directly dependent on demographic distributions, thus not affecting the validity of the analysis.

### 2.2 Measure Tools

This study adopts the SLWAI developed by Cheng (2004), with a total of 22 items. The scale is scored on a 5-point Likert scale (1 = Strongly Disagree; 2 = Disagree; 3 = Neutral; 4 = Agree; 5 = Strongly Agree), and the higher the score, the higher the degree of writing anxiety. In order to fit the actual task situation of students in research universities, "English composition" in the original text is uniformly modified to "academic English writing assignment". The scale has undergone a strict Chinese-English translation process to ensure semantic equivalence.

### 2.3 Data Collection

This study distributed questionnaires online via the Wenjuanxing platform, collecting a total of 356 responses. After excluding incomplete or invalid questionnaires—such as those with patterned answers—344 valid questionnaires were obtained, resulting in an effective response rate of 97%. Data collection was conducted in two phases, with a two-week interval between each round.

This study was conducted in accordance with the Declaration of Helsinki and has been approved by the School of Foreign Languages at Peking University (approval date: June 25, 2025). All participants signed informed consent forms prior to inclusion in the study, fully understanding the research purpose, procedures, and privacy protection measures (data have been anonymized and securely stored). The study complies with the ethical principles of the Declaration of Helsinki and relevant Chinese research regulations.

## 2.4 Data Analysis

In this study, SPSS 26.0 and AMOS 26.0 were used for data analysis. Firstly, KMO test and Bartlett's sphericity test were conducted on the sample data to assess whether the data were suitable for factor analysis. Exploratory factor analysis (EFA) employs principal component analysis and maximum variance orthogonal rotation to determine the number of factors based on eigenvalues greater than 1 and lithotripsy plots. Confirmatory factor analysis (CFA) was used to test the goodness-of-fit of

three-factor models ( $\chi^2/df$ , CFI, TLI, RMSEA, etc.), and to calculate aggregated validity (factor loading, AVE, CR) and discriminant validity (comparison of AVE square root and correlation coefficient). Reliability analysis was conducted using Cronbach's  $\alpha$  coefficient and combined reliability (CR). In similar educational scale studies, Meng et al. (2025) also adopted factor analysis strategies such as KMO test, Bartlett's sphericity test, and principal component analysis when developing an educational attitude scale, providing an interdisciplinary methodological reference for the data analysis path of this study

## 3. Results

### 3.1 Exploratory Factor Analysis (EFA)

Table 1. Adaptability Test of SLWAI

| KMO and Bartlett's Test                          |                    |         |
|--------------------------------------------------|--------------------|---------|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. |                    | 0.914   |
|                                                  | Approx. Chi-Square | 4645.41 |
| Bartlett's Test of Sphericity                    | df                 | 231     |
|                                                  | Sig.               | 0       |

Table 2. The Exploratory Factor Analysis Results of SLWAI

|                    | Rotated component matrix | Component |       |       |
|--------------------|--------------------------|-----------|-------|-------|
|                    |                          | 1         | 2     | 3     |
| Cognitive Anxiety  | Q7                       | 0.823     |       |       |
|                    | Q17                      | 0.822     |       |       |
|                    | Q20                      | 0.807     |       |       |
|                    | Q1                       | 0.794     |       |       |
|                    | Q9                       | 0.782     |       |       |
|                    | Q3                       | 0.767     |       |       |
|                    | Q21                      | 0.749     |       |       |
|                    | Q14                      | 0.708     |       |       |
| Somatic Anxiety    | Q2                       |           | 0.814 |       |
|                    | Q11                      |           | 0.813 |       |
|                    | Q19                      |           | 0.791 |       |
|                    | Q6                       |           | 0.784 |       |
|                    | Q15                      |           | 0.768 |       |
|                    | Q8                       |           | 0.76  |       |
|                    | Q13                      |           | 0.737 |       |
| Avoidance Behavior | Q22                      |           |       | 0.805 |
|                    | Q12                      |           |       | 0.797 |
|                    | Q4                       |           |       | 0.78  |

|     |       |
|-----|-------|
| Q10 | 0.773 |
| Q5  | 0.763 |
| Q18 | 0.746 |
| Q16 | 0.744 |

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Extraction method: Principal Component Analysis.

Table 3. Explanation of Total Variance

| Component | Initial eigen value<br>Total | Variance percentage | Accumulation % | Extract the sum of squares of the loads<br>Total | Variance percentage | Accumulation % | The sum of the squares of the rotational load<br>Total | Variance percentage | Accumulation % |
|-----------|------------------------------|---------------------|----------------|--------------------------------------------------|---------------------|----------------|--------------------------------------------------------|---------------------|----------------|
| 1         | 7.83                         | 35.591              | 35.591         | 7.83                                             | 35.591              | 35.591         | 5.104                                                  | 23.199              | 23.199         |
| 2         | 3.541                        | 16.096              | 51.686         | 3.541                                            | 16.096              | 51.686         | 4.527                                                  | 20.579              | 43.778         |
| 3         | 2.746                        | 12.48               | 64.166         | 2.746                                            | 12.48               | 64.166         | 4.485                                                  | 20.388              | 64.166         |
| 4         | 0.718                        | 3.262               | 67.429         |                                                  |                     |                |                                                        |                     |                |
| 5         | 0.697                        | 3.168               | 70.596         |                                                  |                     |                |                                                        |                     |                |
| 6         | 0.632                        | 2.871               | 73.467         |                                                  |                     |                |                                                        |                     |                |
| 7         | 0.587                        | 2.669               | 76.136         |                                                  |                     |                |                                                        |                     |                |
| 8         | 0.561                        | 2.55                | 78.685         |                                                  |                     |                |                                                        |                     |                |
| 9         | 0.52                         | 2.363               | 81.049         |                                                  |                     |                |                                                        |                     |                |
| 10        | 0.491                        | 2.234               | 83.282         |                                                  |                     |                |                                                        |                     |                |
| 11        | 0.461                        | 2.096               | 85.378         |                                                  |                     |                |                                                        |                     |                |
| 12        | 0.426                        | 1.938               | 87.316         |                                                  |                     |                |                                                        |                     |                |
| 13        | 0.38                         | 1.727               | 89.043         |                                                  |                     |                |                                                        |                     |                |
| 14        | 0.352                        | 1.6                 | 90.643         |                                                  |                     |                |                                                        |                     |                |
| 15        | 0.316                        | 1.435               | 92.078         |                                                  |                     |                |                                                        |                     |                |
| 16        | 0.306                        | 1.389               | 93.468         |                                                  |                     |                |                                                        |                     |                |
| 17        | 0.269                        | 1.223               | 94.691         |                                                  |                     |                |                                                        |                     |                |
| 18        | 0.259                        | 1.179               | 95.87          |                                                  |                     |                |                                                        |                     |                |
| 19        | 0.245                        | 1.116               | 96.985         |                                                  |                     |                |                                                        |                     |                |

|    |       |       |       |
|----|-------|-------|-------|
| 20 | 0.242 | 1.1   | 98.08 |
|    |       |       | 5     |
| 21 | 0.216 | 0.981 | 99.06 |
|    |       |       | 6     |
| 22 | 0.205 | 0.934 | 100   |

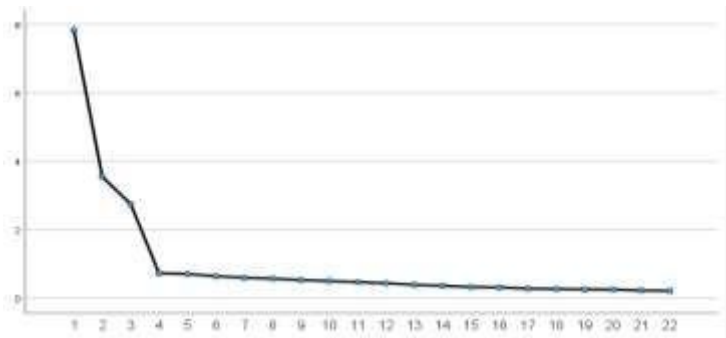


Figure 1. SLWAI Scale Three-Factor Analysis Scree Plot

Table 4. Reliability Statistics for the SLWAI

| Scale Section      | Items                       | Cronbach's Alpha |
|--------------------|-----------------------------|------------------|
| Overall Scale      | Q1-Q22                      | 0.914            |
| Cognitive Anxiety  | Q1 Q3 Q7 Q9 Q14 Q17 Q20 Q21 | 0.918            |
| Somatic Anxiety    | Q2 Q6 Q8 Q11 Q13 Q15 Q19    | 0.909            |
| Avoidance Behavior | Q4 Q5 Q10 Q12 Q16 Q18 Q22   | 0.905            |

3.2 Confirmatory Factor Analysis (CFA)

To verify the three-factor structure identified by EFA, a confirmatory factor analysis (CFA) was

conducted using AMOS 26.0. The standardized path diagram of the measurement model is presented in Figure 2.

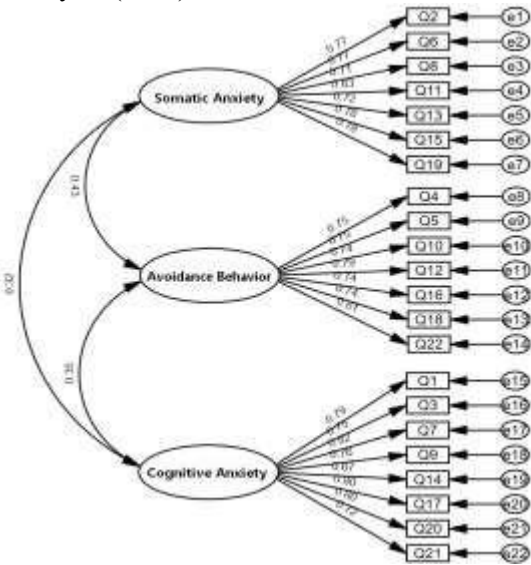


Figure 2. Confirmatory Factor Analysis Model

### 3.2.1 Model Fit Indices

To verify whether the three-factor structure of SLWAI fits the sample data, this study conducted a confirmatory factor analysis (CFA) using AMOS 26.0. As shown in Table 5's model fit

indices:  $\chi^2/df = 2.361$  ( $<5$ ), RMSEA = 0.063 ( $<0.08$ ), CFI = 0.938, TLI = 0.931, and IFI = 0.938 (all  $>0.9$ ). All fit indices meet acceptable standards, indicating that the three-factor model fits the sample data well.

Table 5. Confirmatory Factor Analysis Model Fit Indices

| Common indicators | $\chi^2/df$ | RMSEA   | CFI    | TLI    | IFI    |
|-------------------|-------------|---------|--------|--------|--------|
| criteria          | $<5$        | $<0.08$ | $>0.9$ | $>0.9$ | $>0.9$ |
| value             | 2.361       | 0.063   | 0.938  | 0.931  | 0.938  |

### 3.2.2 Convergent Validity

Convergent validity was assessed using factor loadings, composite reliability (CR), and average variance extracted (AVE). As shown in Table 6, the standardized factor loadings for all items ranged from 0.672 to 0.833, all exceeding the

recommended threshold of 0.6 (Hair, 2010). The CR values for the three latent variables ranged from 0.905 to 0.919, all above 0.7; the AVE values ranged from 0.577 to 0.588, all above 0.5. These results indicate that the scale has good convergent validity.

Table 6. Results of Convergent Validity and Composite Reliability Tests

| Path |      | Factor             | Estimate<br>(factor loadings) | CR    | AVE   |
|------|------|--------------------|-------------------------------|-------|-------|
| Q2   | <--- | Somatic Anxiety    | 0.772                         | 0.909 | 0.588 |
| Q6   | <--- | Somatic Anxiety    | 0.769                         |       |       |
| Q8   | <--- | Somatic Anxiety    | 0.709                         |       |       |
| Q11  | <--- | Somatic Anxiety    | 0.833                         |       |       |
| Q13  | <--- | Somatic Anxiety    | 0.723                         |       |       |
| Q15  | <--- | Somatic Anxiety    | 0.776                         |       |       |
| Q19  | <--- | Somatic Anxiety    | 0.779                         |       |       |
| Q4   | <--- | Avoidance Behavior | 0.747                         | 0.905 | 0.577 |
| Q5   | <--- | Avoidance Behavior | 0.748                         |       |       |
| Q10  | <--- | Avoidance Behavior | 0.740                         |       |       |
| Q12  | <--- | Avoidance Behavior | 0.790                         |       |       |
| Q16  | <--- | Avoidance Behavior | 0.736                         |       |       |
| Q18  | <--- | Avoidance Behavior | 0.742                         |       |       |
| Q22  | <--- | Avoidance Behavior | 0.809                         |       |       |
| Q1   | <--- | Cognitive Anxiety  | 0.794                         | 0.919 | 0.586 |
| Q3   | <--- | Cognitive Anxiety  | 0.749                         |       |       |
| Q7   | <--- | Cognitive Anxiety  | 0.815                         |       |       |
| Q9   | <--- | Cognitive Anxiety  | 0.764                         |       |       |
| Q14  | <--- | Cognitive Anxiety  | 0.672                         |       |       |
| Q17  | <--- | Cognitive Anxiety  | 0.802                         |       |       |
| Q20  | <--- | Cognitive Anxiety  | 0.801                         |       |       |
| Q21  | <--- | Cognitive Anxiety  | 0.718                         |       |       |

### 3.2.3 Discriminant Validity

Discriminant validity was assessed using the Fornell-Larcker criterion, which requires that the square root of the average variance extracted (AVE) for each latent variable be greater than its correlations with other variables. As shown in Table 7, the square roots of the AVEs for somatic

anxiety, avoidance behavior, and cognitive anxiety (bolded diagonal values) were 0.767, 0.760, and 0.766, respectively each exceeding the off-diagonal correlation coefficients within their respective rows and columns (maximum value: 0.432). The results indicate sufficient discriminant validity among the three dimensions.

Table 7. Results of Discriminant Validity Test

|                    | AVE   | Somatic anxiety | Avoidance Behavior | Cognitive Anxiety |
|--------------------|-------|-----------------|--------------------|-------------------|
| Somatic Anxiety    | 0.588 | <b>0.767</b>    |                    |                   |
| Avoidance Behavior | 0.577 | 0.350           | <b>0.760</b>       |                   |
| Cognitive Anxiety  | 0.586 | 0.321           | 0.432              | <b>0.766</b>      |

## 4. Discussion

### 4.1 Exploratory Factor Analysis and Reliability Testing

For RQ1 and RQ3, this study employed the Second Language Writing Anxiety Inventory (SLWAI) developed by Cheng (2004), conducting exploratory factor analysis (EFA) and reliability testing on a group of students at a research university in China who were facing high-pressure academic English writing tasks.

Refer to Table 1-4 and Figure 1, the EFA results revealed a clear three-factor structure of SLWAI in the current sample: cognitive anxiety (8 items: Q1, Q3, Q7, Q9, Q14, Q17, Q20, Q21), somatic anxiety (7 items: Q2, Q6, Q8, Q11, Q13, Q15, Q19), and avoidance behavior (7 items: Q4, Q5, Q10, Q12, Q16, Q18, Q22). This dimensional division fully aligns with the theoretical structure of Cheng's (2004) original scale.

From the Table 4, the reliability analysis revealed that the total scale had a Cronbach's  $\alpha$  coefficient of 0.914, while the three subscales showed  $\alpha$  coefficients of 0.918 (cognitive anxiety), 0.909 (somatic anxiety), and 0.905 (avoidance behavior), all exceeding the excellent threshold of 0.9 ( DeVellis, 2017). Additionally, the KMO value was 0.914, and Bartlett's test of sphericity was significant ( $\chi^2 = 4645.41$ ,  $df = 231$ ,  $p < 0.001$ ), with a total variance explained of 64.166%. These results indicate that the SLWAI demonstrated good reliability and structural validity in the current sample, successfully replicating the original scale's three-dimensional structure.

### 4.2 Confirmatory Factor Analysis and Structural Validity Testing

For RQ2, this study employed confirmatory factor analysis (CFA) to cross-validate the three-factor model derived from EFA, in order to examine the structural validity of SLWAI in the current sample.

The CFA results indicate that the three-factor model fits the sample data well, with all fit indices meeting the recommended psychometric standards. Regarding convergent validity, all item factor loadings exceed the recommended threshold, and the composite reliability (CR) and average variance extracted (AVE) for each latent variable meet the required criteria, suggesting good convergent validity of the scale. In terms of discriminant validity, the square root of the AVE for each latent variable is greater than its correlations with other variables, indicating sufficient discriminant validity among the three dimensions.

In conclusion, SLWAI demonstrated excellent structural validity among Chinese college students under high academic pressure. The CFA results further verified the robustness of the three-factor model discovered by EFA.

### 4.3 Suggestions for Teaching

This study validated the three-factor structure of SLWAI (cognitive anxiety, somatic anxiety, and avoidance behavior) among students with high academic pressure in Chinese research universities, providing empirical evidence for targeted teaching interventions. Based on these

findings, the following educational recommendations are proposed:

#### **4.3.1 Weaken Public Comparison and Strengthen Process Evaluation**

This study reveals that cognitive anxiety is particularly prominent among students under high academic pressure, primarily manifesting as concerns about evaluation, grades, and others' opinions. Teachers can reduce the stress caused by public comparisons in class by using anonymous peer assessment, multiple formative feedback sessions, and self-reflection journals. At the same time, encouraging students to improve through diligence can help alleviate their cognitive anxiety regarding academic English writing from a psychological perspective.

#### **4.3.2 Creating a Low-Anxiety Writing Environment**

Somatic anxiety manifests as physiological responses such as tension and increased heart rate. Teachers can help students gradually manage the cognitive load of academic English writing through timed writing exercises, progressive task design, and writing workshops. Peer support and group discussions can also effectively reduce stress and boost writing confidence.

#### **4.3.3 Enhance the Positive Writing Experience**

Avoidance behaviors reflect students' tendency to evade writing tasks. Teachers should design engaging writing assignments that are relevant to students' personal academic interests and provide ample scaffolding, such as templates, corpora, and example analyses. Encouraging students to start with small-scale writing tasks can help them accumulate successful experiences and gradually reduce avoidance motivation.

#### **4.3.4 Addressing the Unique Needs of Students Under High Academic Pressure**

For students facing pressures related to graduate school recommendations, studying abroad, or academic paper publication, schools can establish an Academic English Writing Support Center offering resources such as one-on-one tutoring and writing emergency stations. At the same time, teachers should integrate emotion management and time management strategies into their

courses, or incorporate appreciative education principles into classroom instruction (Zhang and Yang, 2026), to help students develop a healthy mindset toward writing.

#### **4.4 Comparison with Related Studies**

This study found that the SLWAI fully replicated Cheng's (2004) three-factor structure (cognitive anxiety, somatic anxiety, and avoidance behavior) among Chinese university students under high academic pressure. This result is consistent with Kusumaningputri et al.'s (2018) validation findings in Indonesian EFL university students, but shows a notable discrepancy compared to Waked et al.'s (2024) findings among Saudi female university students.

Waked et al. (2024) reported that the avoidance behavior dimension was not supported, and cognitive anxiety split into two sub-dimensions: "competence anxiety" and "evaluation anxiety." In contrast, in this study, avoidance behavior emerged as an independent dimension, and cognitive anxiety did not split. This difference may stem from three factors: first, differing levels of educational competition pressure. Students at top research universities in China face intense evaluative pressures regarding graduate school recommendations, studying abroad, and publication, making avoidance behavior a recognizable coping pattern; second, cultural norm differences. Saudi female students tend to exhibit higher compliance with authority in classroom settings, which may suppress the expression of avoidance behaviors (Waked et al. 2024); third, differences in scale context. Waked et al. simplified the wording of the scale, whereas this study aimed to preserve the original phrasing closely related to academic writing tasks.

Yu and Zhou (2022) found in their qualitative study of Chinese EFL learners that students experienced relatively high levels of cognitive anxiety but exhibited relatively low avoidance behaviors. The quantitative results of this study partly support this observation. Cognitive anxiety was indeed the most prominent dimension (with the highest factor loading), yet avoidance behavior still emerged as a distinct and measurable dimension, indicating that avoidance remains a significant manifestation of anxiety in high-stakes academic writing contexts.

In summary, the factor structure of SLWAI is context-sensitive. When using this scale in cross-cultural settings in the future, structural validation should be conducted in consideration of specific educational environments and task contexts, rather than directly applying the original model.

## 5. Conclusion

This study examined the structural validity, reliability, and factorial structure of the SLWAI among students with high academic stress in Chinese research universities through EFA and CFA, and reached the following conclusions:

First, the SLWAI successfully reproduced the original three-factor structure. The EFA results clearly revealed three dimensions—cognitive anxiety (8 items), somatic anxiety (7 items), and avoidance behaviors (7 items)—consistent with Cheng's (2004) original model. The total scale had a Cronbach's  $\alpha$  of 0.914, while subscales ranged from 0.905 to 0.918, indicating excellent reliability.

Second, the SLWAI demonstrates good structural validity. The CFA results indicate that all fit indices of the three-factor model meet acceptable standards, and both convergent and discriminant validity satisfy psychometric requirements.

Third, this study's findings differ from those of Waked et al. (2024) among Saudi female university students. While the latter reported the disappearance of avoidance behaviors and fragmented cognitive anxiety, our study fully replicated the classic three-factor structure, indicating that the factor structure of writing anxiety is influenced by educational context and cultural background.

## 6. Research Limitations and Future Directions

This study has the following limitations. First, sample limitations. The sample was drawn from only one top-tier research university; although it may represent a typical case of students under high academic pressure, its representativeness is limited, and caution is needed when generalizing the findings. Future studies should include students from universities at different levels, as well as varying genders and grade levels, to

examine measurement invariance and enhance external validity.

Second, the data collection method is limited. This study relies solely on self-report questionnaires without incorporating diverse methods such as interviews, observations, or physiological measurements, which may lead to common method bias and social desirability bias. Future research could consider using mixed methods (e.g., combining semi-structured interviews with physiological assessments) to enhance data richness and objectivity, thereby gaining a deeper understanding of students' subjective experiences of writing anxiety.

Third, this study did not collect participants' gender, age, or grade level information, making it impossible to examine measurement invariance or explore differences in writing anxiety across groups (such as different genders or grades). Future research should include these variables to further uncover group differences in writing anxiety.

Fourth, the study lacks qualitative data support. It examined the structure of writing anxiety solely through quantitative methods, failing to gain a deeper understanding of students' specific anxiety experiences, coping strategies, and meaning-making processes under high academic pressure. Future research could incorporate interviews or open-ended questionnaires to provide contextualized interpretations of the quantitative findings.

It is worth emphasizing that the institutions surveyed in this study serve as benchmarks among China's top research universities, and their students represent a "typical case" with significant theoretical implications regarding academic expectations, peer competition, and pressure for advancement—providing valuable insights into foreign language learners' anxiety under high academic stress. Despite these limitations, this study is the first to validate the three-factor structure of the SLWAI (Second Language Writing Anxiety Inventory) among Chinese university students experiencing high academic pressure, offering preliminary psychometric evidence for its application in similar contexts. Future research could further

explore the cross-situational mechanisms underlying writing anxiety by improving sample representativeness, incorporating demographic variables, and adopting mixed-methods approaches. Additionally, targeted teaching interventions could be designed using emerging

technologies such as digital textbooks, augmented reality (AR), virtual reality (VR), and mixed reality (MR) to more effectively alleviate academic English writing anxiety among students under high academic pressure.

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