

# A Correlation Study of Chinese English Learners' Writing Anxiety, Writing Strategies, and Writing Achievements

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**Jin, Ming-hao & Guo, Yan. (2021). A correlation study of Chinese English learners' writing anxiety, writing strategies, and writing achievements. *The Linguistic Association of Korea Journal*, 29(1), 139-160.** This study aims to investigate Chinese English learners' writing anxiety, and analyzes its correlation with their writing strategies and writing achievements. Two questionnaires, designed by referring to and re-editing Petric and Czarl's (2003) Writing Strategies Questionnaire and Cheng's (2004) Second Language Writing Anxiety Inventory, were completed by 90 Chinese senior high school students in Yanji, China. SPSS 24.0 was used to analyze the data and produce descriptive statistics, paired sample T-tests, and Pearson correlation coefficient analysis. The result shows that students have a moderate degree of anxiety. High anxiety students experience the highest cognitive anxiety, and low anxiety students experience the highest physical anxiety. English learners' writing anxiety shows a significant negative correlation with writing strategies. High anxiety students seldom use English writing strategies, while low anxiety students use them very often in the process of completing a writing task. English learners' writing anxiety shows a significant negative correlation with writing achievements as well. The higher English learners' writing anxiety is, the lower their writing achievements will be. Thus, English learners should be encouraged and trained to use English writing strategies well to reduce English writing anxiety and improve the level of writing achievements.

**Key Words:** Chinese English learners, writing anxiety, writing strategies, writing achievements

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## 1. Introduction

Writing is a process of communication and a key part of language learning. It is one of the basic skills required to be trained on every level of English Curriculum Standards, and it has been measured in a way of direct testing in every large-scale English Examinations in China. The total score of Chinese college entrance English examination is 150 points, of which English writing part takes up 25 points, accounting for one-sixth of the total score (National Education Examinations Authority, 2019). It can be noted that the level of English writing achievement is very important for senior high school students.

However, in high-stake examination, such as college entrance English examination, because of the tight examination time and psychological tension, students are subjectively prone to be anxious during the exam, which in turn affects their writing performance. Krashen (1982) believed that learners often experience more anxiety in English writing than their native language writing. Guo and Qin (2010) said that the anxiety and psychological behavior of students in the output of foreign language writing affects the completion of writing, so that the higher level of anxiety they have, the lower their scores will be. Therefore, we should pay more attention to the impact of writing anxiety on students' English writing.

Daly and Miller (1975) defined the term 'writing apprehension' to describe the dysfunctional anxiety that many learners suffer when confronted with a writing task. As for the measurement of writing anxiety, they designed the Daly-Miller Writing Apprehension Test in view of native language writing. For second language learners, Cheng (1999) designed a widely used survey questionnaire, Second Language Writing Anxiety Inventory (somatic anxiety, cognitive anxiety and anxiety caused by avoidance behavior), to measure the degree of writing anxiety.

The related studies of writing anxiety can be classified into five types: 1) Reasons to cause English writing anxiety (Cheng, 2002; Tao, 2006; Guo & Qin, 2010); 2) Factors influencing English writing anxiety (Cheng, 1999; Li & Liu, 2013); 3) Effects of English writing anxiety on writing performance (Zhang, 2008; Li, 2015); 4) Methods of reducing writing anxiety (Gu & Wang, 2004; Guo, 2011); 5) Interrelationships of English writing anxiety, writing strategies and writing performance (Wang, & Wu, 2013; Lee, Hong, & Lim, 2014; Cho & Kim, 2019).

Learners' writing anxiety may have an impact on their choice of writing strategies,

and even writing performance. When completing a writing task, it is proved that English learners can use writing strategies to reduce writing anxiety and improve their writing achievements. Therefore, more empirical studies about the correlation among English writing anxiety, writing strategy use, and writing achievements are necessary.

## **2. Literature Review**

### **2.1. Writing Anxiety**

Daly and Miller (1975) first proposed the term 'writing anxiety'. Bloom (1980) pointed out that writing anxiety is a label for one or a combination of feelings, or behaviors that interfere with a person's ability to start, work on, or finish a given writing task that they are intellectually capable of doing. Day and Wilson (1983) defined writing apprehension as a situation and subject-specific individual difference that is concerned with a person's tendency to approach or avoid writing accompanied by some amount of evaluation. Cheng (1998) said that writing anxiety was universally considered as negative and anxious feelings interfere with some aspects of the writing process. Guo and Qin (2010) illustrated that writing anxiety are pessimistic and negative emotions experienced during the process of writing, which may reduce writing performance. Bai (2017) pointed out that English writing anxiety is a kind of tension, uneasiness and fear cause by individual factors or the poor performance in the process of learning and training writing skills in the classroom.

Therefore, writing anxiety can be defined as a kind of particular behavior generated in the process of writing, including physical anxiety, cognitive anxiety, and anxiety caused by avoidance behavior (Cheng, 2004).

### **2.2. Writing Strategy**

Cohen (2000) said that writing strategies are a series of conscious and concrete behaviors or methods adopted by learners in order to improve their writing efficiency. Huang and Chen (2006) pointed out that writing strategies are ways and means adopted by writers in order to successfully complete their writing tasks. Chen (2007) found that writing strategies are the actions taken by learners before writing, such as thinking before writing, writing drafts, revising and evaluating after writing. Deng Jie and Deng

Hua (2017) argued that writing strategies are actions taken by writers to achieve an expressive purpose or improve expressive effect.

There are several ways to classify writing strategies: 1) Classification of the writing process. Petric and Czarl (2003) divided writing strategies into three categories: pre-writing, while-writing and post-writing revision 2) Classification of writers' subjective thinking mode. Yang (2002) divided the writing strategies into five categories: preparation, drafting, revision, reader awareness and avoiding mother tongue 3) Classification focusing on the essence of writing and the concept of writing strategies. Liu (2006) divided writing strategies into two categories: learning strategies and output strategies; 4) Classification based on the importance of monitoring in writing. Ren (2006) divided the writing strategies into four stages: the preparation stage before writing, drafting, revising and monitoring stage.

Thus, writing strategies can be defined as a series of methods that students purposefully adopt in order to complete the writing task better, including pre-writing, while-writing and post-writing strategies (Chen, 2011).

### **2.3. Interrelationship of Chinese English Learners' Writing Anxiety, Writing Strategies, and Writing Achievements**

Ellis'(1994) Model of L2 acquisition proposed that individual learner differences (beliefs, affective strategies, learner factors, and previous learning experience), together with various situational and social factors (target language, setting, task performed, and gender) determine learners' choice of learning strategies. As a particular type of affective factor (Ellis, 1994), anxiety, will affect learners' choice of learning strategies, and finally affect learners' writing performance as well.

By summarizing the previous studies on the interrelationship of Chinese English learners' writing anxiety, writing strategy use and writing achievements, it is found that studies can be divided into the following three aspects: 1) The influences of learners' English writing anxiety on their writing strategy use; 2) The influences of learners' English writing anxiety on their writing achievements; 3) The influences of learners' English writing strategy use on their writing achievements.

Guo and Qin (2010) proposed that writing tasks would arouse learners' writing anxiety and most of learners will avoid writing assignments as much as possible. They divided writing anxiety into four categories: classroom anxiety, conceived anxiety, avoidance behavior, and confidence anxiety. Taking 294 non-English majors of freshmen

as subjects, Li and Liu (2013) proved that English writing anxiety, writing self-efficacy and writing scores are significantly negatively correlated. Yu (2016) said that Chinese college students use English writing strategies frequently in the process of English writing. Metacognitive strategies and cognitive strategies are the most widely used strategies, while emotional strategies are the least common used ones. There is no significant gender difference in writing strategy use, but there is a significant positive correlation between writing strategies and writing performance.

However, few empirical studies have been conducted on the interrelationships of Chinese senior high school students' English writing anxiety, writing strategy use, and writing achievements, especially research on the differences in the choice of writing strategies for students with different levels of English writing anxiety, as well as the differences between their writing achievements.

### **3. Research Design**

#### **3.1. Research Questions**

This study aims to analyze the current situation of English writing anxiety of Chinese senior high school students, and explore whether the English writing anxiety has any effects on the use of writing strategies and writing achievements. The research questions are as follows:

- (1) What is the current situation of English writing anxiety among Chinese senior high school students?
- (2) Does the Chinese senior high school students' English writing anxiety affect the use of writing strategies?
- (3) Does the Chinese senior high school students' English writing anxiety affect their English writing achievements?

#### **3.2. Participants**

102 senior high school students from NO. 2 Yanbian Senior High School, China, were recruited in this study. Through a data screening process, valid data from 90 participants was used. The participants were all in their second grade in senior high school from two different classes. The average age of participants was 16.3 years old,

including 46 males and 44 females.

This study selected a writing task as a sample of data collection. All participants were asked to write a letter with some helpful advice to deal with smoking problem of a student who had written for help. When scoring the writing task, the English writing scoring criteria of college entrance examination was used. The total score of writing task is 25 points. Scores were given according to five different grades, ranging from 'excellent (21-25 points)', 'good (16-20 points)', 'average (11-15 points)', 'poor (6-10 points)', 'very poor (1-5 points)'. In scoring, the grade of composition is initially determined according to the content and language of the composition, and then the score is given based on the requirement of scoring of that grade. The students' English writing in this study is graded by three teachers with extensive teaching and assessing experience.

### 3.3. Instruments and Procedures

The research instruments involved in this study are an English writing anxiety questionnaire and an English writing strategy questionnaire. Descriptive statistics, paired sample T-test and Pearson correlation coefficient have been done by using SPSS 24.0.

Based on L2 Writing Anxiety Inventory (Cheng 2004), an English Writing Anxiety Questionnaire was redesigned. The questionnaire has a total of 22 questions, including physical anxiety, cognitive anxiety, and anxiety caused by avoidance behavior, as shown in Table 1.

Table 1. English Writing Anxiety Questionnaire

Physical anxiety
1. In case of a specific time limit for writing, my heartbeat beats faster.
2. When I see the writing topic, my brain goes blank and I don't know what to write.
3. When I realize that there is not enough time left to write, I will become nervous and start shivering.
4. With time restraints, my writing ideas become very messy.
5. I feel very anxious when I write the composition within the fixed time.
6. I will feel at a loss when I am asked to write an English composition without preparing it in advance.
7. I will become numb and stiff during my English writing exam, and I will be very scared.
Cognitive anxiety
1. I don't feel flustered when writing in English.
2. If the composition I wrote was reviewed by the teacher, I will feel very nervous.

3. I am confident in my English writing and I don't worry that my writing is worse than others.
4. I am very afraid that my composition would get a low score.
5. I am very afraid that my classmates would laugh at me when they saw the composition I wrote.
6. I don't feel nervous when other people read my composition.
7. I often worry that my composition will be evaluated in class.
8. I never worry about the score of my composition.

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Anxiety caused by avoidance behavior

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1. I often use English to write diary, essay, feelings and so on.
  2. I seldom write in English and write articles.
  3. I usually don't write English compositions I have to write in homework.
  4. I will write English composition in the case of specific requirements.
  5. When asked to write an English composition, I will do other things that have nothing to do with writing.
  6. I sometimes practice English writing in my spare time.
  7. I will practice writing in English as long as conditions permit.
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Based on Writing Strategies Questionnaire (Petric & Czarl, 2003), an English Writing strategy Questionnaire was redesigned. The questionnaire has a total of 34 items, including pre-writing strategies, while-writing strategies and post-writing strategies, as shown in Table 2.

Table 2. English Writing Strategy Questionnaire

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Pre-writing strategy

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1. I will make a timetable while writing.
  2. Before I start writing, I will carefully read the requirements of the composition topic.
  3. I refer to other Chinese or English model essays in order to complete my writing better.
  4. I start writing without any plans or ideas.
  5. I come up with a brief outline first in mind when writing, but I do not write it on the draft paper.
  6. I write the words, phrases, and sentence patterns on the draft paper that will be used in writing.
  7. I write a draft in English in advance.
  8. I write a draft in Chinese in advance.
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While-writing strategy

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1. I start with writing the beginning part first.
2. I stop after each sentence to read it again.
3. After writing a few sentences or a paragraph, I will stop writing and read to see if the content is exactly meet with what I want to express.

4. I will read the written content repeatedly when I have no idea of writing.
5. When there is no writing idea, I will appropriately delete or adjust the original outline.
6. I write what I want to write in Chinese first and then translate it into English.
7. While writing, I only use words and grammar that I am sure of.
8. When I don't know how to express myself in English, I will simplify what I want to express.
9. When writing, if I can't write a word, I will use words with similar meaning instead.
10. When using a word that I can't write, I will mark it in Chinese next to it, and then find the right word.
11. When I encounter a word that I can't write, I will stop and look it up in the dictionary.
12. When looking up words, I use a Chinese-English dictionary.
13. When looking up words, I use an English-English dictionary.
14. When I have difficulties in writing, I will ask others for help.

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Post-writing strategy

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1. I will read the content from beginning to end when I finish my composition.
  2. After completing the writing task, I will not check it and hand it over to the teacher directly.
  3. I will look up the dictionary to revise the composition.
  4. I will revise words and phrases.
  5. I will revise the sentence patterns.
  6. I will revise the structure of the composition.
  7. I will revise the content of the composition.
  8. When I feel that the composition is not good enough, I will write it again.
  9. I will check the completion of the composition according to the requirements of the topic.
  10. I will show the composition to others and ask for their advice.
  11. I will compare my composition with the one written by my classmates to find out my own shortcomings.
  12. After the teacher reviews the composition, I will revise it carefully and try not to make the same mistakes in the future.
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The Cronbach alpha coefficient for English writing anxiety questionnaire is 0.843, for English writing strategy questionnaire is 0.739, which show a relatively high reliability and validity.

In order to investigate if there is a significant difference between high anxiety students and low anxiety students in writing strategy use and writing achievements, this study divided all participants into three groups: high anxiety, moderate anxiety and low anxiety students.



The score of each question was given 1-5 points for English writing anxiety questionnaire. Therefore, the maximum value a participant can get is 110 points, and the lowest value is 22 points. The actual maximum value in this survey was 86 points and the lowest value was 44 points.

When dividing participants into high and low anxiety groups, Cheng's (2004) classifying method was used. That is the mean range between 3.0 and 3.4 indicates high anxiety, the mean range between 2.5 and 2.9 indicates moderate anxiety, the mean range between 2.0 and 2.4, indicates low anxiety, and the mean range below 2.0 indicates no anxiety. In this study, the students with the mean range of 3.5-4.0 are considered as high anxiety students. And the students with the mean range of 2.0-2.4 are treated as low anxiety students. Each cluster has 30 students in total, as shown in Table 3.

Table 3. English Writing Anxiety in High and Low Anxiety Students

Different level English Writing Anxiety	Number of students	Number of questions	English writing anxiety score range	Mean range
High anxiety	30	22	77-86	3.50-3.91
Low anxiety	30	22	44-55	2.00-2.50

## 4. Results and Discussion

### 4.1. Analysis of High School Students' English Writing Anxiety

#### 4.1.1. The Overall Analysis of High School Students' English Writing Anxiety

This study firstly provides a descriptive statistical analysis of the overall situation of high school students' English writing anxiety, as shown in Table 4. In the description of the data, Guo and Qin's (2010) data analysis method was employed, which was designed based on the Likert five-point data description. That is, the mean range between 4.5 and 5.0 is considered as '*always*' the mean range between 3.5 and 4.4 as '*often*' the mean range between 2.5-3.4 as '*sometimes*' the mean range between 1.5 and 2.4 as '*rarely*' the mean range below 1.5 as '*never*'.

Table 4 shows that the high school students' English writing anxiety showed a moderate level (M=2.96). Among them, the proportion of cognitive anxiety was the highest (M=3.04), followed by physical anxiety (M=2.99), and anxiety caused by

Table 4. Descriptive Statistics of English Writing Anxiety

English writing anxiety	Number of students	Number of questions	Mean range	M	SD
Physical anxiety	90	7	2.26-3.59	2.99	1.126
Cognitive anxiety	90	8	2.46-3.99	3.04	1.321
Anxiety caused by avoidance behavior	90	7	1.79-4.06	2.83	1.085
Overall anxiety	90	22	1.79-4.06	2.96	1.237

avoidance behavior (M=2.83).

#### 4.1.2. Analysis of English Writing Anxiety of High and Low Anxiety Students

##### 1) High Anxiety Students

In order to see the high anxiety students' performance in physical anxiety, cognitive anxiety and anxiety caused by avoidance behavior, this study made a statistical analysis of high anxiety students' English writing anxiety, as shown in Table 5.

Table 5. High Anxiety Students' English Writing Anxiety

English writing anxiety	Number of students	Number of questions	Mean range	M	SD
Physical anxiety	30	7	1.90-4.43	3.65	0.961
Cognitive anxiety	30	8	3.73-4.47	4.17	0.931
Anxiety caused by avoidance behavior	30	7	2.47-3.67	3.14	1.231
Overall anxiety	30	22	1.90-4.47	3.67	1.036

Table 5 shows that the mean scores of overall anxiety, and its classification, physical anxiety, cognitive anxiety, anxiety caused by avoidance behavior are all bigger than 3. Among them, the cognitive anxiety (M=4.17) is the highest, followed by physical anxiety (M=3.65) and the anxiety caused by the avoidance behavior (M=3.14).

##### 2) Low Anxiety Students

In order to see the low anxiety students' performance in physical anxiety, cognitive anxiety and the anxiety caused by avoidance behavior, this study also made a statistical analysis of low anxiety students' English writing anxiety, as shown in Table 6.

Table 6. Low Anxiety Students' English Writing Anxiety

English writing anxiety	Number of students	Number of questions	Mean range	M	SD
Physical anxiety	30	7	1.66-3.62	2.52	1.098
Cognitive anxiety	30	8	1.59-3.62	2.24	0.981
Anxiety caused by avoidance behavior	30	7	1.24-3.07	2.05	0.982
Overall anxiety	30	22	1.24-3.62	2.27	1.018

Table 6 shows that the mean scores of overall anxiety, and its classification, physical anxiety, cognitive anxiety, anxiety caused by avoidance behavior are all lower than 3. Among them, physical anxiety ( $M=2.52$ ) is the highest, followed by cognitive anxiety ( $M=2.24$ ) and anxiety caused by avoidance behavior ( $M=2.05$ ).

## 4.2. Analysis of High School Students' English Writing Strategy

### 4.2.1. The Overall Analysis of High School Students' English Writing Strategies

A descriptive statistical analysis of the overall use of high school students' English writing strategies was done, as shown in Table 7.

Table 7. Descriptive Statistics of English Writing Strategies

English writing strategy	Number of students	Number of questions	Mean range	M	SD
Pre-writing strategy	90	8	1.53-4.37	2.67	1.105
While-writing strategy	90	14	2.01-4.32	3.02	1.162
Post-writing strategy	90	12	2.24-4.09	2.93	1.197
Overall writing strategy	90	34	1.53-4.37	2.91	1.161

Table 7 shows that the overall use of English writing strategies for high school students is moderate ( $M=2.91$ ). Among them, the while-writing strategy has the highest frequency ( $M=3.02$ ), followed by post-writing strategy ( $M=2.93$ ), and pre-writing strategy ( $M=2.67$ ).

### 4.2.2. Analysis of English Writing Strategies of High and Low Anxiety Students

#### 1) High Anxiety Students

In order to see high anxiety students' performance in using pre-writing strategies,

while-writing strategies and post-writing strategies, this study made a statistical analysis of high anxiety students' use of English writing strategies, as shown in Table 8.

Table 8. Use of English Writing Strategies by High Anxiety Students

High anxiety	Number of students	Number of questions	Mean range	M	SD
Pre-writing strategies	30	8	1.40-4.33	2.76	1.037
While-writing strategies	30	14	1.67-4.43	2.95	1.018
Post-writing strategies	30	12	1.67-3.77	2.43	1.031
Overall writing strategies	30	34	1.40-4.43	2.72	1.027

Table 8 shows that the mean score of overall English writing strategies used by high anxiety students is lower than 3 ( $M=2.72$ ), indicating that students with high anxiety have a lower frequency of writing strategies. Among them, the while-writing strategies ( $M=2.95$ ) is the most frequently used by high anxiety students, followed by the pre-writing strategies ( $M=2.76$ ) and post-writing strategies ( $M=2.43$ ).

## 2) Low Anxiety Students

In order to see low anxiety students' performance in using pre-writing strategies, while-writing strategies and post-writing strategies, this study made a statistical analysis of low anxiety students' use of English writing strategies, as shown in Table 9.

Table 9. Use of English Writing Strategies by Low Anxiety Students

Low anxiety	Number of students	Number of questions	Mean range	M	SD
Pre-writing strategies	30	8	1.17-4.41	2.68	1.030
While-writing strategies	30	14	2.10-4.34	3.21	1.129
Post-writing strategies	30	12	2.14-4.38	3.19	1.158
Overall writing strategies	30	34	1.17-4.41	3.08	1.116

Table 9 shows that the mean score of overall English writing strategy used by low anxiety students is bigger than 3, indicating that low anxiety students use the writing strategy more frequently. Among them, the while-writing strategies ( $M=3.21$ ) is the most frequently used by low anxiety students, followed by post-write strategies ( $M=3.19$ ), and pre-write strategy ( $M=2.68$ ).

### 3) Difference Analysis of English Writing Strategies Used by High and Low Anxiety Students

The paired sample T-test results shows that students with high and low anxiety have significant differences in the use of English writing strategies ( $t=-5.820$ ,  $df=29$ ,  $p<0.05$ ): the frequency of high-anxiety students using English writing strategies is significantly lower than that of low-anxiety students using English writing strategies, as shown in Table 10.

Table 10. Differences in the Use of English Writing Strategies between High and Low Anxiety Students

Writing strategy	High anxiety (n=30)	Low anxiety (n=30)	t	df	Sig (two sides)
	M(SD)	M(SD)			
	92.57(6.106)	104.73(9.472)	-5.820	29	0.000

#### 4.2.3. Correlation Analysis of High School Students' English Writing Anxiety and Writing Strategies

In order to better analyze the impact of English writing anxiety on the use of overall writing strategies, as well as the pre-writing strategies, writing strategies, and post-writing strategies, this study used SPSS 24.0 statistical software to analyze the Pearson correlation coefficient of the questionnaire data, as shown in Table 11.

Table 11. Correlation between High School Students' English Writing Anxiety and Writing Strategies

		Writing anxiety	Writing strategy	Pre- Writing anxiety	While- writing strategy	Post- writing strategy
Writing anxiety	Pearson correlation	1	-.415**	.093	-.236*	-.503**
	Significant (bilateral)		.000	.381	.025	.000
Writing strategy	Pearson correlation	-.415**	1	.432**	.777**	.826**
	Significant (bilateral)	.000		.000	.000	.000

		Writing anxiety	Writing strategy	Pre- Writing anxiety	While- writing strategy	Post- writing strategy
Pre-writing strategy	Pearson correlation	.093	.432**	1	.347**	.055
	Significant (bilateral)	.381	.000		.001	.607
While-writin g strategy	Pearson correlation	-.236*	.777**	.347**	1	.354**
	Significant (bilateral)	.025	.000	.001		.001
Post-writing strategy	Pearson correlation	-.503**	.826**	.055	.354**	1
	Significant (bilateral)	.000	.000	.607	.001	

\*\* Significantly correlated at the .01 level (both sides).

\* Significantly correlated at the 0.05 level (both sides).

Table 11 shows that high school students' English writing anxiety has a significant negative correlation with writing strategies. The correlation coefficient is  $-0.415$  ( $p < 0.01$ ), indicating that the higher the English writing anxiety, the lower the frequency of writing strategies; high school students' correlation coefficient between English writing anxiety and pre-writing strategies is  $0.093$  ( $p > 0.05$ ), and there is no statistically significant correlation. The relationship between them is not significant, probably because students only pay attention to the requirements of English essay topics before writing, and outlines or drafts are written in their minds, while other pre-writing strategies are used at a low frequency. Therefore, students have a low level of English writing anxiety when using the pre-writing strategies. The high school students' English writing anxiety is negatively correlated with the while-writing strategies. The correlation coefficient is  $-0.236$  ( $p < 0.05$ ), which indicates that the high school students' English writing anxiety is more affected by writing strategies. The high school students' English writing anxiety and the post-writing strategies shows a significant negative correlation with a correlation of  $-0.503$  ( $p < 0.05$ ), indicating that a significant correlation between high school students' English writing anxiety and post-writing strategies.

### 4.3. Analysis of English Writing Scores of High School Students

English writing scores were graded and reviewed by the three school teachers

according to the five grades of the college entrance examination English writing scoring criteria. The average scores of the students in English writing can be seen in Table 12.

Table 12. Statistics on English Writing Scores of High School Students

	Number of Students	Max	Min	M	SD
Writing scores	All students (90)	20	12	18.51	1.588
	High anxiety students (30)	18	12	16.93	1.552
	Low anxiety students (30)	20	17	19.27	0.944

Table 12 shows that the mean score of the students in this English writing task is 18.51 points, which exceeds the passing score, 15 points. Among them, the high score is 20 points, while the lowest score is 12 points. However, none got the highest grade score, 21-25 points. The mean score of high anxiety students is 16.93 points with the highest score 18 and the lowest score 12. While the mean score of low anxiety students is 19.27 points with the highest score 20 and the lowest score 17. It indicates that a small number of high anxiety students' English writing scores do not meet the passing requirements and students with low anxiety have a better English writing performance than students with high anxiety. Therefore, all students' English writing performance needs to be improved, especially high anxiety students.

#### 4.3.1. Difference Analysis of English Writing Scores of High and Low Anxiety Students

As further proof, a difference analysis between English writing scores of high and low anxiety students' has been conducted. The results of paired sample T-test showed that students with high and low anxiety have significant differences in English writing scores ( $t=-6.484$ ,  $df=29$ ,  $p<0.05$ ), and those with high anxiety have significantly lower English writing scores than low anxiety students, as shown in Table 13.

Table 13. Differences in English Writing Scores between High and Low Anxiety Students

	High anxiety (n=30)	Low anxiety (n=30)	t	df	Sig (two sides)
Writing scores	M(SD)	M(SD)	-6.484	29	0.000
	16.93(1.552)	19.27(0.944)			

#### 4.3.2. Correlation Analysis of English Writing Anxiety and Writing Achievements of High School Students

In order to better analyze the overall anxiety during the process of English writing, as well as the impact of anxiety caused by physical anxiety, cognitive anxiety and avoidance behavior on English writing performance, Pearson correlation coefficients is employed in this study to analyze the correlation between English writing anxiety and writing performance, as shown in Table 14.

Table 14. Correlation between English Writing Anxiety and Achievements of High School Students

		Writing anxiety	Physical anxiety	Cognitive anxiety	Anxiety caused by avoidance behavior	Writing score
Writing anxiety	Pearson correlation	1	.902**	.851**	.804**	-.580**
	Significant (bilateral)		.000	.000	.000	.000
Physical anxiety	Pearson correlation	.902**	1	.596**	.593**	-.505**
	Significant (bilateral)	.000		.000	.000	.000
Cognitive anxiety	Pearson correlation	.851**	.596**	1	.633**	-.494**
	Significant (bilateral)	.000	.000		.000	.000
Anxiety caused by avoidance behavior	Pearson correlation	.804**	.593**	.633**	1	-.504**
	Significant (bilateral)	.000	.000	.000		.000
Writing score	Pearson correlation	-.580**	-.505**	-.494**	-.504**	1
	Significant (bilateral)	.000	.000	.000	.000	

\*\* Significantly correlated at the .01 level (both sides).

Table 14 shows that high school students' English writing anxiety has a significant negative correlation with writing performance. The correlation coefficient is -0.580 ( $p < 0.01$ ), which indicates that the higher the students' English writing anxiety, the lower



the students' English writing scores will be. The high school students' body anxiety is negatively correlated with their writing scores, and the correlation coefficient is  $-0.505$  ( $p < 0.01$ ), indicating that there is a significant correlation between high school students' English writing scores and physical anxiety; high school students' cognitive anxiety was negatively correlated with writing scores, and the correlation coefficient is  $-0.494$  ( $p < 0.01$ ), indicating that the English writing performance of high school students is significantly affected by cognitive anxiety. The anxiety caused by high school students' avoidance behavior is negatively correlated with writing performance. The correlation coefficient is  $-0.504$  ( $p < 0.01$ ), indicating that the English writing performance of high school students is more easily affected by the anxiety caused by avoidance behavior.

## 5. Conclusion and Implication

### 5.1. Major Findings

High school students have a moderate degree of anxiety in the English writing process ( $M=2.96$ ). Among high school students' English writing anxiety, cognitive anxiety accounts for the largest proportion ( $M=3.04$ ), followed by physical anxiety ( $M=2.99$ ), and anxiety caused by avoidance behavior ( $M=2.83$ ).

High anxiety students have the highest cognitive anxiety ( $M=4.17$ ), followed by physical anxiety ( $M=3.65$ ) and anxiety from avoidance behavior ( $M=3.14$ ); low anxiety students have the highest physical anxiety ( $M=2.52$ ), followed by cognitive anxiety ( $M=2.24$ ) and anxiety results from avoidance behavior ( $M=2.05$ ). The anxiety caused by avoidance behavior is both the lowest for high anxiety students and low anxiety students, but there is a significant difference in terms of physical anxiety and cognitive anxiety. It indicates that physical anxiety and cognitive anxiety have a great impact on both high anxiety and low anxiety students.

The use of English writing strategies by high school students is generally moderate ( $M=2.91$ ). Among them, pre-writing strategies have the lowest frequency ( $M=2.67$ ), then the post-writing strategy ( $M=2.93$ ), and the highest is the while-writing strategy ( $M=3.02$ ). These results also support the findings by Chen (2011) and Lee, Hong and Lim (2014) that EFL learners have high reliance on while-writing strategies.

Students with high anxiety use writing strategies less frequently. The most frequently

used writing strategies for high anxiety students were while-writing strategies ( $M=2.95$ ), followed by pre-writing strategies ( $M=2.76$ ) and post-writing strategies ( $M=2.43$ ); low anxiety students used writing strategies more frequently. While-writing strategies are the most frequently used by low anxiety students ( $M=3.21$ ), followed by post-writing strategy ( $M=3.19$ ), and pre-writing strategies are rarely used as writing strategies ( $M=2.68$ ). There are significant differences in writing strategies used by high and low anxiety students ( $t=-5.820$ ,  $df=29$ ,  $p<0.05$ ), indicating that students with high anxiety use English writing strategies significantly less frequently than those with low anxiety.

High school students' English writing anxiety and writing strategies show a significant negative correlation. The correlation coefficient is  $-0.415$  ( $p<0.01$ ), indicating that the higher the students' English writing anxiety is, the lower the frequency of using writing strategies is. These results proved the major findings of Ellis (1994) and Li and Liu (2013) that if EFL learners' writing strategy frequent and well use can lower their writing anxiety to some extent.

The average score of English writing for high school students is 18.51 points. Among them, the highest score is 20 points, and the lowest score is 12 points. It is found that no students get the highest grade score, 21-25 points, and even a small number of high anxiety students fail to get the passing score, 15 points.

The English writing average score of high anxiety students is 16.93 points, just over 15 points; the average English writing score of low anxiety students is 19.27 points, exceeding the passing score by 4.27 points. High and low anxiety students have significant differences in English writing achievements ( $t=-6.484$ ,  $df=29$ ,  $p<0.05$ ), indicating that the writing performance of students with high anxiety is significantly lower than that of students with low anxiety.

High school students' English writing anxiety shows a significant negative correlation with writing performance. The correlation coefficient is  $-0.415$  ( $p<0.01$ ), indicating that the higher students' English writing anxiety, the lower their English writing score. This result is consistent with the findings of Guo (2011) and Li (2015) that English writing anxiety have great negative influence on writing performance.

## 5.2. Implications and Limitation of the Study

Some important pedagogical implications can be drawn from major findings. Lowering writing anxiety and improving the effective use of writing strategies could

help Chinese English learners' writing performance. The positive effect of English writing training and instruction by English teachers is suggested to lower English writing anxiety, especially pre-writing and post-writing training. Besides teaching linguistic knowledge, grammar and writing skills, cooperative environment, positive feedback and encouragement from teachers may also lower EFL learners' writing anxiety and help them develop self-confidence in English writing.

A limitation of the study is that the possible effects of the participants linguistic knowledge, grammar, writing skills on their writing anxiety, writing strategy use, and writing performance were not considered. In addition, the participants came from a senior high school, and the number of them was only 90, so that it might affect the generality of the research results.

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