An Investigation of Chinese High School Students' EI, English Writing Anxiety and Performance

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Abstract. The present study investigated 197 Chinese Year-2 senior high school students through a survey and analyzed the correlations between students' EI, anxiety, and performance. Major findings were: (1) Chinese high school students' EI and English writing performance are in the middle level, and they experience moderate writing anxiety; (2) EI is uncorrelated with English writing performance, which cannot predict it; (3) anxiety mediates EI and English writing performance. It is correlated with EI and performance negatively; (4) Cognitive anxiety is the only component of writing anxiety that can negatively predict writing performance. Thus, it is concluded that improving students' EI could reduce their English writing anxiety and improve their performance.

Keywords: High school student · Emotional Intelligence · anxiety · performance

1 Introduction

English writing ability is a tool for measuring the English proficiency of foreign language learners. Most research mainly concentrated on the states of university students, especially English majors. At the same time, they focused on measuring anxiety and the relationship between writing anxiety and writing performance. Few studies focus on Chinese high school students and the internal factors that cause foreign language writing anxiety.

This study takes 197 high school year-2 students in Henan as subjects. It employs the L2 Anxiety Scale (Cheng) and the TEIQue-SF (short form) to test the students' EI and writing anxiety.

The present study intends to answer the following questions:

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B. Majoul et al. (Eds.): ICLAHD 2022, ASSEHR 726, pp. 139–145, 2023.
https://doi.org/10.2991/978-2-494069-97-8_18

(1) What are the levels of Chinese High school students' EI and English writing anxiety?
(2) What are the relationships among High school students' EI, English writing anxiety, and English writing performance?
(3) How do EI and writing anxiety predict high school students' writing performance?

2 Research Design

2.1 Context

This study was conducted in a normal high school in Henan Province, which has an intermediate level in this Province. A questionnaire was conducted to measure the variables in this school.

2.2 Participants

The present study collected data from 197 Chinese Year-2 senior high school students. Students' English performance in this study includes monthly examination performance and self-assessment performance.

2.3 Instruments

The online questionnaire was a combination of SLWAI and TEIQue-SF, with Cronbach's alpha at 0.763.

This is a fourth level heading. You can replicate it where suitable.

Reliability for TEIQue-SF has been verified by much research [1–3]. Moreover, the reliability of TEIQue-SF in the mandarin version translated by Hambleton and Lee was tested to be $\alpha = 0.82$ [4]. In this case, SPSS.25 was used to do statistical analysis.

3 Results

3.1 General Tendencies of Chinese High School Students EI, Writing Anxiety, English Writing Performance

197 samples were collected for statistical analysis. Chinese high school students' EI, writing anxiety, and writing performance were computed in terms of Mean, Standard Deviation (Std), Skewness, and Kurtosis to explore levels, differences, and normality. In general, individual differences were obvious among participants ($n = 197$), and all variables were normal data (Skewness < 3, Kurtosis < 10).

Table 1. Linear Regression Analysis

Linear Regression					
Items	B	Beta	P	VIF	R^2
El	−0.002	−0.017	0.819	1.176	0.096
Writing Anxiety	−1.543	−0.331	0.000**	1.176	0.096
Cognitive Anxiety	−0.904	−0.246	0.004**	1.524	0.101
Somatic Anxiety	−0.132	−0.041	0.634	1.571	0.101
Avoidance Behavior	−0.518	−0.127	0.089	1.198	0.101

Dependent Variable: Writing performance
*p < 0.05 **p < 0.01

Chinese high school students' English writing performance positions in the middle level
In this study, the mean of Chinese high school students' writing scores is 16.350. As writing scores in a high school English test range from 1 to 25. According to Chinese high school students' L2 writing proficiency is in a medium level.

Chinese high school students have middle-level EI
TEQIQue-SF had a mean of 131.579, which is between 120 to 150, meaning that Chinese high school students have moderately developed EI. Standard deviation indicates obvious individual differences among subjects. Also, results presented in each of the four dimensions demonstrate that the target students generally have a moderate level of emotionality, self-control, sociability, and well-being.

Chinese high school students experience moderate writing anxiety
In order to identify whether Chinese students in high schools are suffering from English writing anxiety SLWAI is used to collect the relative data. On 5-point Liker Scale, the average of more than 3.5 implies highly frequent use or a positive attitude. The mean score of 2.5–3.4 refers to medium use or support, and the average of less than 2.4 is regarded as low frequent use or negative attitude. According to the result of descriptive analysis, the mean of the total writing anxiety suffered by Chinese high school students is 2.725, which falls into the scope of 2.5–3.4. Accordingly, the students experience moderate writing anxiety. Additionally, cognitive anxiety and avoidance behavior are similar in that the mean falls into the scope of 2.5–3.4. However, the mean of somatic anxiety is 2.468, which is the lowest among the 3 sub-components.

3.2 EI and Writing Anxiety's Predictive Effects on Writing Performance

EI's predictive effects on writing scores
In Table 1, Parameter estimation shows that EI can not predict writing performance ($p = 0.819 > 0.05$).

Writing anxiety has predictive effects on writing performance
The data are computed by linear regression model to identify whether writing anxiety can predict writing performance. According to the test, writing anxiety can predict the writing performance, with $p < 0.01$, beta $= -0.331$, VIF < 3. Based on the adjusted R2, it can explain 9.6% of the change in the writing performance. Among the 3 sub-components, cognitive anxiety is the only sub-component that can negatively predict writing performance, with $p < 0.05$, beta $= -0.246$.

3.3 Relationships Between EI, Writing Anxiety and Writing Performance

EI is uncorrelated with writing performance
After Pearson Correlations, it showed that, EI, as well as other four dimensions have no correlations with students' writing performance.

After correlational analysis, EI significantly has negative correlations with writing anxiety, along with three levels from writing anxiety (cognitive anxiety, somatic anxiety, avoidance behavior. ($p < 0.05$, $r = -0.387$). In terms of three dimensions of EI, self-control, emotionality, well-being and sociability are respectively negatively related to writing anxiety, along with cognitive anxiety, somatic anxiety. However, avoidance behavior, one level from writing anxiety, only EI and emotionality have negative relations with it.

Writing anxiety negatively correlates with students' English writing performance
The statistics are generated using the Pearson product-moment correlation coefficient to determine the association between English writing performance and writing anxiety. According to correlational analysis, there is a negative correlation between overall writing anxiety and writing performance (p0.01, $r = -0.324$**), meaning that the more anxiety a student feels, the worse their writing will likely be. Regarding the three subcomponents, writing performance is negatively correlated with cognitive anxiety, physical anxiety, and avoidance behavior. And with a p-value of 0.01, $r = -0.312$, cognition is the factor that significantly corresponds with writing performance.

Writing anxiety is a mediator between EI and writing performance
Based on the above analysis, EI and writing performance are both correlated with anxiety. Thus, relationships between EI, writing anxiety and students' writing performances were computed though Baron and Kenny's mediator model. [5].

Mediation analysis shows that writing anxiety plays as a mediator between EI and writing performance. ($c = 0.016$, $a = -0.012$**, $b = -1.543$**). Moreover, cognitive anxiety from writing anxiety, plays as a mediator between well-being and writing performance ($c = 0.024$, $a = -0.024$*, $b = -0.874$**).

Note: c: the regression coefficient (when there is no mediator variable in the model).
2.a: the regression coefficient when X is against Y
3.b: the regression coefficient when Y is against Z
4. If a and b are significant, c is not significant, then it is a complete mediation.

4 Discussion

4.1 Chinese High School Students have a Moderate Level of EI, Writing Anxiety, Writing Performance

The above statistical analysis shows that most Chinese high school students' writing performance positions in the middle level, with an average score reaching 16.35. With a mean of 131.579, Chinese high school students also have moderately developed EI. In terms of four dimensions from TEIQue-SF, the results also indicate that students' emotionality, self-control, well-being, and sociality are in the middle level. Similar results of the average score of High school students were also indicated in previous studies [6].

In terms of writing anxiety, the data of show that the mean of total writing anxiety is 2.725, located in the scope of 2.3–3.4, which indicates that Chinese high school students in Henan are generally suffering from moderate writing anxiety, which is different from the research of Wern and Rahmat [7]. To be specific, the students mostly suffer from cognitive anxiety and then avoidance behavior. And they experience little somatic anxiety, which is consistent with the research of Wern and Rahmat [7]. The reason why the writing anxiety level is different in these 2 research might be that the students are in different regions. In Wern and Rahmat's research, the students are from a Malaysian middle school [7]. The strategy in Malaysia differs from China. Additionally, different teaching methods might cultivate students with different English levels and learning stress, which leads to different writing anxiety.

4.2 EI, Writing Anxiety and Writing Performance Have Pairwise Relationships

EI is not related to English writing performance but is related to writing anxiety
The present experiment shows that EI has no relation to writing performance and cannot predict writing performance. The results showed that EI is highly negatively correlated with writing anxiety. Four dimensions of EI also have negative relations with three levels of writing anxiety. The results were similar to previous research [8–11].

Relationships between writing anxiety and writing performance
The data indicate that there is a negative correlation between overall writing anxiety and writing performance, which is consistent with the findings of Cheng, Horwitz, and Schallert [12] and Cheng, Horwitz, and Schallert. Writing performance is adversely correlated with each of the three sub-components, cognitive anxiety, physical anxiety, and avoidance behavior, which is also similar with the finding in Cheng, Horwitz, and Schallert [5]. In conclusion, the students who with less writing anxiety tend to gain higher scores on the writing test.

Writing anxiety negatively predicts writing performance
The experiment on writing anxiety's predictive effects on writing scores indicates that writing anxiety can predict writing performance in the next test. However, among the 3 sub-components, only cognitive anxiety can predict writing performance. Although writing performance can explain some of the changes in the next test, there might be more significant factors (such as writing skills, and task difficulty) that directly affect writing performance.

4.3 Writing Anxiety's Mediation Effects

Writing anxiety is a connection between EI and writing performance. A similar result was also shown in Xu and Li study [13][14]. However, the highlight of this study is that, it adds new findings to the current experiment about EI, writing anxiety, and writing performance. It further investigated four factors in EI and three factors in writing anxiety. The results showed that cognitive anxiety, a factor of writing anxiety, is a mediator between well-being and writing performance. Thus, it can be inferred that, in future L2 teaching, when assessing English writing performance, teachers are encouraged to pay attention on the level of wellbeing and cognitive anxiety.

5 Conclusion

In conclusion, the research produced the following important results: (1) The participants' EI and English writing performance are in the moderate level, and they experience moderate writing anxiety; (2) EI is negatively correlated with Writing anxiety and is uncorrelated with writing performance; (3) English writing anxiety is a mediator between EI and English writing performance. It is negatively correlated with EI and English writing performance; (4) The statistics also show that the only sub-component of writing anxiety that may accurately predict writing performance is cognitive anxiety.

Some suggestions are proposed to train students' EI. One effective way to train EI can be a RULER feeling curriculum, which helps students better understand words. Another effective way can be emotional learning programs (ELP), using class by teachers, class by the nonschool teacher, etc. Furthermore, schools need to create a good atmosphere of learning and communication.

At the same time, the results can also be conducive to the teaching of English writing. They are overwhelmed by the anxiety and pressure, which requires the teacher's guidance in correctly recognizing and dealing with writing anxiety. Also, teachers can adjust the writing teaching strategy within the examination scope to change students' understanding of English writing. Not only it is necessary to regard English writing as a problematic yet intolerable test task but guide them to use English writing as a unique way to record their daily life. So they could have a much more pleasant and relaxed attitude toward English writing, thereby increasing students' willingness and confidence in English writing.

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