

A Study of the Relationship Between High School Students' English Learning Self-Efficacy, Anxiety and Learning Effectiveness

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Abstract: This study investigates the relationship between self-efficacy, anxiety, and English learning outcomes among Chinese high school students, contributing new insights to second language acquisition (SLA). The research builds on previous work by integrating quantitative analysis with a multidimensional framework that considers two psychological factors. This study employed a quantitative research approach, utilizing questionnaires based on established scales, such as Liang and Zhou's Academic Self-Efficacy Scale and Horwitz's Foreign Language Classroom Anxiety Scale. Having invited senior high school students in Tianjin to voluntarily fill out questionnaires online, 100 valid data were collected and analyzed by Jamovi. The findings aim to inform educational policy, offering a localized perspective that accounts for China's unique educational and cultural context. By examining the levels of self-efficacy and anxiety and their correlation, the study seeks to predict their impact on English learning performance. This empirical research approach provides targeted insights, enhancing understanding of foreign language teaching, particularly in examination-focused settings.

Keywords: Second Language Acquisition, Foreign Language Anxiety, Self-efficacy

1. Introduction

Research on the relationship between second language acquisition effects and emotions can be traced back to the 1960s. In recent years, the research on emotions in second language acquisition has gone through a phase of neglect to attention, in which emotions have also been delineated in detail by researchers have delineated emotions in detail, and they have an impact on second language acquisition.

Self-efficacy was introduced by psychologist Bandura in 1977 and referred to an individual's judgement of the ability to perform a behavior. Most studies combine psychology and education and use quantitative research with different emphases. Wang and Huang approached it through the lens of meta-analytic theory building [1]. Shao, Kristina, and Herbert applied control value theory and analysed it through the AEQ-L2L hypothetical model to illustrate its moderating role [2]. Yu and Jiang used L2MSS analysis to explore college students' writing and how instructors can use motivation to help students enhance their learning [3]. Jiao, Jin and Wang derived self-efficacy from

social psychology to produce motivation [4], and Mostafa and Hassan expressed a similar meaning in the article [5].

Anxiety has been one of the key factors in the emotions of second language acquisition, and Freud believed that anxiety was a warning raised by the ego when it felt threatened. Horwitz suggested that foreign language anxiety is a "specific complex of self-perceptions, emotions, and behaviors " in language learning [6]. P.A. and Maya argued that anxiety leads to students' fear of making mistakes, lack of confidence, and lack of fluency [7]. Kevin has a similar view that anxiety affects reading [8]. To study anxiety in specific foreign language skills, researchers have created assessment tools such as the Foreign Language Writing Anxiety Inventory Cheng [9] and Daly and the Foreign Language Reading Anxiety Inventory Saito [10-11]. In recent years, there has been a gradual increase in the number of studies on anxiety and academic performance of Chinese English learners, and many studies have analysed the significant negative correlation between learners' level of foreign language anxiety and their academic performance in foreign languages. Like Li and Li, Liu has been mentioned [12-14].

The research findings can serve as a basis for educational policymakers, aiding them in formulating more scientifically sound education policies to enhance the quality and effectiveness of English instruction. This multidimensional analysis fills a gap in existing research by constructing a comprehensive analytical framework that simultaneously considers the influence of self-efficacy and anxiety on learning outcomes. Moreover, focusing specifically on Chinese high school students offers more targeted insights. Given China's unique educational environment and social-cultural context, this study proposes new insights. It contributes to the localization and refinement of existing theories.

The research questions encompass the following: What are the levels of self-efficacy and anxiety experienced by high school students in their English learning? Is there a correlation between self-efficacy and anxiety in English learning among high school students? How do self-efficacy and anxiety predict the English learning performance of high school students? Employing an empirical research approach, this study encompasses questionnaire surveys and interviews.

Building upon previous research, this study specifically focuses on the current status of English learning among Chinese high school students. It enriches the scope of research in this field by expanding the target population to include high school students. This study's findings apply to China's educational environment and cultural context, enhancing relevant theories. Moreover, this research provides insights into foreign language teaching aimed at examination preparation and assists students in improving their academic performance.

2. Method

This study employed a quantitative research approach, utilizing a questionnaire survey to collect data for analyzing the impact of anxiety and self-efficacy on the English learning outcomes of high school students. This study randomly selects 100 senior high school students from Tianjin to distribute survey questionnaires.

The study referenced the Academic Self-Efficacy Scale, which is widely used to assess students' self-efficacy with high reliability and validity. The Horwitz Foreign Language Classroom Anxiety Scale was employed for assessing anxiety, specifically in foreign language learning environments, and recognized internationally as a reputable tool. The use of standardized scales ensures the comparability and reliability of research findings. The Likert five-point scale will be utilized for scoring, with the magnitude of scores used to assess the impact of these two emotions on high school students' English learning.

The Academic Self-Efficacy Scale and the Foreign Language Classroom Anxiety Scale cover multiple psychological dimensions influencing students' English learning. Integrating self-efficacy and anxiety in this study provides a comprehensive perspective that is less common in existing

literature, offering new insights into the psychological influences on students' English learning. Employing English college entrance examination scores as the measure of learning outcomes establishes a direct correlation with students' academic achievement, enhancing the practicality and persuasiveness of the research findings.

This study's methodological design maintains scientific rigor and innovation while demonstrating practical utility. It is expected to provide new insights into understanding the psychological influences on high school students' English learning.

3. Results

3.1. Analysis of the Results of English Self-efficacy

Data analysis of the 100 questionnaires showed that the average English self-efficacy score of senior students in the school was 3.48, which exceeded the mean value of 3.00, indicating that the English self-efficacy of senior students in Tianjin school was moderate to high. The highest self-efficacy score is 3.92, meaning that most students agree they can achieve good results in English learning. The lowest score is 3.03, meaning that most students do not think they have more English knowledge than other students, with a standard deviation of 0.253. The four dimensions of self-efficacy examined by the students are confidence, sense of ability to complete the tasks, sense of ability to overcome difficulties, and ability to accept and grasp new knowledge, and the mean is 0.253. knowledge acceptance and grasping ability, with mean values of 3.55, 3.57, 3.50, and 3.33, respectively.

According to the above data, it can be seen that the overall self-efficacy of the school's senior students belongs to the middle-upper level, and the standard deviation shows that the overall discrete trend of the self-efficacy of the senior students is small, and the individual differences are not big. Among them, learners have the strongest sense of ability to complete tasks and the worst ability to accept and grasp knowledge.

In English learning in Chinese high schools, teachers hope that students will achieve high scores in the gaokao (a selective examination taken by qualified high school graduates), emphasising that students complete the learning tasks as required and focus their lectures on the types of questions examined in the gaokao, and may ignore the expansion and understanding of new knowledge; as a result, students have the strongest sense of competence in completing the tasks, and their acceptance and grasp of new knowledge will be slightly poorer.

3.2. Analysis of the Results of English Learning Anxiety

By analysing the anxiety questionnaire, it can be seen that the mean value of the scores of English learning anxiety of the senior students of the school is 2.834, which indicates that the students' anxiety is low. The mean values of communicative fear, test anxiety, fear of negative evaluation and anxiety about English class were 2.79, 2.585, 2.96, and 2.79, respectively. it can be seen that the students had the weakest anxiety about English class and the strongest level of anxiety about fear of negative evaluation. The degree of dispersion of the anxiety score data of the senior students is 0.435. The distribution is more concentrated, and there is not much individual difference.

The overall anxiety of the senior students of this school in Tianjin is not high, which is related to the students' learning ability and the competitive pressure of the college entrance examination, so the students' anxiety about the examination is relatively weak. Still, due to the lack of practice in English communication, the students fear the evaluation given by the teacher. They have a relatively strong sense of negative evaluative fear and fear of communication, as well as anxiety about the English class.

3.3. Correlation analysis of English Self-efficacy, Learning Anxiety and Achievement

This section analyses the relationship between self-efficacy, academic anxiety and achievement, and statistical results will be reported based on data derived from correlational analyses using Jamovi.

3.3.1. The Correlation Between English Self-efficacy and Learning Anxiety

According to the correlation analysis between learning anxiety and self-efficacy, (Table 1) Pearson correlation coefficient is -0.665 ($p < 0.05$), which proves that learning anxiety is negatively correlated with English self-efficacy. Therefore, anxiety as a negative emotion will affect learners' self-efficacy to a certain extent, and when students' self-efficacy is stronger, anxiety will be reduced, which will help students' English learning to a certain extent, enhance their confidence in learning, and may lead to better results.

Table 1: Correlation between anxiety and self-efficacy.

		anxiety	self-efficacy
anxiety	Pearson's correlation coefficient r		
	(number of) degrees of freedom (physics)		
	p-value		
self-efficacy	Pearson's correlation coefficient r	-0.665	
	(number of) degrees of freedom (physics)	8	
	p-value	0.036	

3.3.2. Correlation Between English Self-efficacy and Achievement

Table 2 shows a significant positive correlation between English performance and self-efficacy ($r = 0.664$, $p < 0.01$). (Figure 1) When students' confidence is stronger, their performance may be better, so teachers need to help students build up their self-efficacy in English learning, which can promote their English learning.

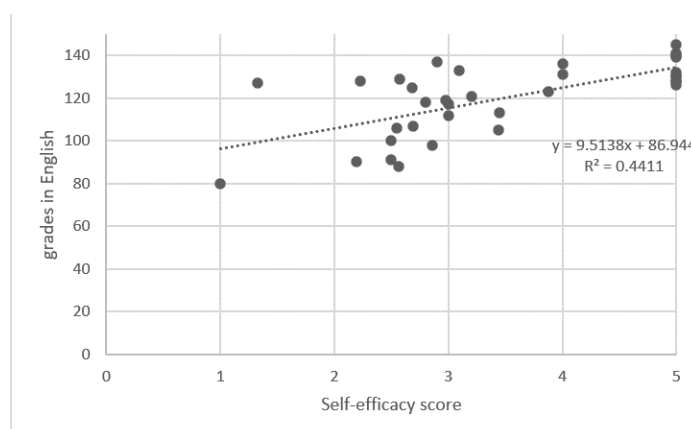


Figure 1: Linear relationship between self-efficacy and achievement.

Table 2: Self-efficacy and achievement correlation coefficients.

modelling		Complex correlation coefficient R		Coefficient of determination R ²	
1		0.664		0.441	
predictor variable	ratio	standard error	t-value	p-value	Standardised coefficient
intercept (the point at which a line crosses the x- or y-axis)	86.94	6.90	12.61	< .001	
self-efficacy	9.51	1.89	5.03	< .001	0.664

3.3.3. The Correlation Between Anxiety and Performance in English Learning

Through Table 3, it can be seen that there is a significant negative linear correlation between learning anxiety and achievement directly ($r=0.552$, $p<0.01$), and the higher the learner's anxiety, the more hindrance it may bring to the process of second language learning, which may also affect the learner's learning effectiveness. (Figure 2)

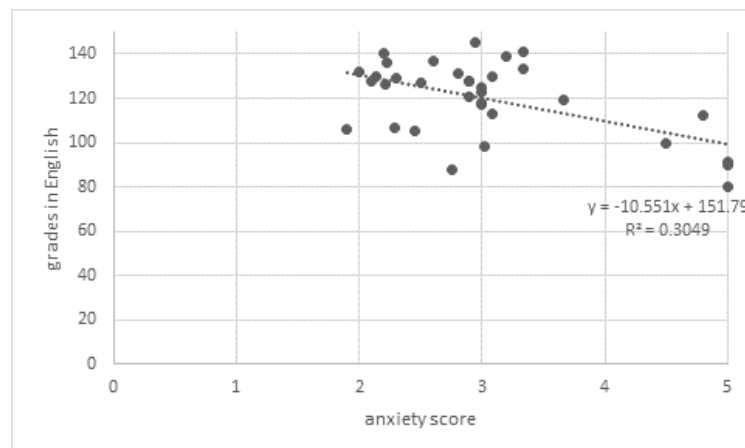


Figure 2: Linear Relationship between Anxiety and Achievement.

Table 3: Correlation coefficient between anxiety and English performance.

modelling		Complex correlation coefficient R		Coefficient of determination R ²	
1		0.552		0.305	
predictor variable	ratio	standard error	t-value	p-value	Standardised coefficient
intercept (the point at which a line crosses the x- or y-axis)	151.8	8.88	17.09	< .001	

Table 3: (continued)

self-efficacy	-10.6	2.82	-3.75	< .001	-0.552
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4. Conclusion

The study demonstrates a strong correlation between English proficiency and self-efficacy. The results suggest that students with confidence in their abilities are more inclined to excel in English learning. This self-assurance serves as a driving force for students to actively engage in the learning process and offers crucial psychological support during times of difficulty.

The research indicates a noteworthy negative linear correlation between anxiety and English proficiency. As a detrimental emotion, anxiety impedes students' language acquisition, impacting their cognitive abilities and learning effectiveness. Furthermore, the adverse association between learning anxiety and English self-efficacy validates anxiety's harmful influence on learners. This emotional state can diminish students' confidence and dampen their enthusiasm when confronted with learning obstacles.

The high school phase is characterized by significant academic and psychological pressure, especially for senior students facing the stress of college entrance examinations. Studying this demographic provides an in-depth understanding of students' psychological states during this critical period. Based on these findings, it is recommended that educators and schools prioritize cultivating students' self-efficacy by providing positive feedback, encouraging student participation, and creating supportive learning environments to enhance students' confidence. Schools and teachers should also implement measures to alleviate students' anxiety, such as offering stress management skills training and establishing effective learning strategies. Researching the impact of anxiety on academic performance can increase awareness in the educational community regarding the importance of students' mental health and promote the provision of more psychological support in schools.

Furthermore, it is suggested that future research further explore the influence of anxiety on English self-efficacy and proficiency across different cultural backgrounds, as well as how educational interventions can improve this relationship. By integrating knowledge from psychology, education, linguistics, and other relevant fields, interdisciplinary research on self-efficacy and anxiety can lead to a more comprehensive understanding. Through these efforts, valuable insights and recommendations can be provided to promote students' comprehensive development in English language learning.

Authors Contribution

All the authors contributed equally and their names were listed in alphabetical order.

References

- [1] Wang Yabing,Huang Yunting. A meta-analysis of the relationship between self-efficacy and second language achievement[J]. *Foreign Language Society*,2022(03):89-96.
- [2] Shao, Kaiqi; Stockinger, Kristina; Marsh, Herbert W; Pekrun, Reinhard. Applying control-value theory for examining multiple emotions in L2 classrooms: Validating the Achievement Emotions Questionnaire - Second Language Learning. [J].*Language Teaching Research*,2023,: 1
- [3] Yu, Shulin; Jiang, Lianjiang.L2 university students' motivational self-system in English writing: a sociocultural inquiry[J]. *APPLIED LINGUISTICS REVIEW*,2023,Vol.14(3): 553-578
- [4] Shi Jiao; Hui Jin; Zheng You; Jie Wang. Motivation and Its Effect on Language Achievement: Sustainable Development of Chinese Middle School Students ' Second Language Learning[J]. *Sustainability*, 2022, Vol.14(9918): 9918
- [5] Papi, Mostafa; Khajavy, Gholam Hassan. Motivational Mechanisms Underlying Second Language Achievement: a Regulatory Focus Perspective[J]. *Language Learning*,2021, Vol.71(2): 537-572

- [6] Horwitz E K, Horwitz M B & Cope J. Foreign language classroom anxiety [J]. *The Modern Language Journal*, 1986, 70(2) : 125-132.
- [7] Vizhi, P.A. Kayal; Rathnasabapathy, Maya. Anxiety Experienced by Students with Learning Disability in English Speaking Classroom[J]. *World Journal of English Language*,2024,Vol.14(1): 461-471
- [8] Chan, Kevin; Yeung, Pui-sze; Chung, Kevin Kien Hoa. The effects of foreign language anxiety on English word reading among Chinese students at risk of English learning difficulties[J]. *READING AND WRITING*,2024,
- [9] Cheng, Y. A. 2004. Measure of Second Language Writing Anxiety:Scale Development and Preliminary Validation [J]. *Journal of Second Language Writing* (4):313-335.
- [10] Daly, J. & M. Miller. 1975. The Empirical Development of an Instrument to Measure Writing Apprehension[J]. *Research in the Teaching of English* (3):242-249
- [11] Saito, Y., Horwitz, E. K., & Garza, T. J. (1999). Foreign language reading anxiety. *Modern Language Journal*, 83(2), 202-218.
- [12] Li Jiongying,Li Qing . Research on foreign language anxiety in China:Review and reflection--Statistical analysis based on papers in foreign language journals in the past ten years(2006-2015)[J]. *Foreign language community*, 2016, (04):58-65.
- [13] LI Hang,LIU Rude. The relationship between college students' foreign language writing anxiety and writing self-efficacy and its prediction of writing performance[J]. *Foreign Language Research*, 2013, (02):48-54+112.
- [14] Li Jong-Ying,Lin Sheng-Shu. Thirty years of foreign research on second/foreign language learning anxiety[J]. *Foreign Language Teaching*, 2007, (04):57-63.