

# Investigating English Majors' Online Learning Anxiety and Its Influencing Factors

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## Abstract

Anxiety in second language acquisition refers to the tension or unease that students experience while learning a foreign language. Despite extensive research on anxiety in second language acquisition, little has been done to explore online learning anxiety. This study aimed to examine Chinese English majors' anxiety and its influencing factors in online learning from the control-value theory perspective. Through a utilization of questionnaires and semi-structured interviews, this study found: (1) Chinese English majors exhibited a moderate level of online learning anxiety, with gender and academic year level exerting no significant influence on anxiety levels; (2) Multiple influencing factors, involving the individual learners, their teachers and peers as well as the learning environment, contributed to Chinese English majors' online learning anxiety. It is suggested that teachers prioritize increasing communication and interaction with students in online teaching to alleviate the anxiety, boost the learning effect and promote the physical and mental well-being of the students.

**Keywords:** anxiety, Chinese English majors, influencing factors, online teaching, online learning

## 1. Introduction

Second language acquisition (SLA) has undergone an affective turn, focusing on emotional dimensions (Li et al., 2021). A significant concern and unfavorable emotional response related to the acquisition and usage of a second language is recognized as foreign language anxiety (FLA) (Gregersen & MacIntyre, 2014). Indicators of FLA include physical symptoms such as stomach ache, quick heartbeat, and rapid pulse, and in severe cases, an inability to speak or a fear of speaking a foreign language (Young, 1991). Furthermore, FLA may adversely affect language output, listening comprehension, vocabulary acquisition, and overall performance on language tests (Horwitz, 2001).

Undoubtedly, the COVID pandemic has exerted a profound effect on the realm of education (Sun & Zhang, 2023), which has brought a shift from traditional in-person instruction to e-learning context (Babicka-Wirkus et al., 2021). Anxiety among foreign language (FL) learners is influenced by various factors, involving individual linguistic and cultural backgrounds (Chen et al., 2022; Yoon, 2021). Studies indicate coping mechanisms may differ by gender, with male students more likely to employ relaxation techniques (Kao et al., 2017). Dewaele and Alfawzan (2018) investigated the influence of English proficiency on FLA; however, few studies have explored online learning anxiety. It is essential to recognize that second language (L2) emotions are shaped by both internal characteristics (such as age) and external influences (such as teaching environment).

This study probes into the overall situation of Chinese English majors' online learning anxiety, exploring potential correlations with variables such as gender and academic year level. By elucidating the factors that cause Chinese English majors' learning anxiety within the context of online learning, this study aims to offer insights into the improvement of online teaching and learning.

## 2. Literature Review

### 2.1 *The Control-value Theory and FLA*

Control-value theory, put forth by Pekrun (2006) in educational psychology, posits that emotions are not solely provoked by the accomplishment-related activities or outcomes themselves, but rather by individuals' subjective

evaluations of the significance and controllability of these activities or outcomes (Pekrun et al., 2023; Zhao & Yang, 2023).

Numerous studies have delved into the relationship between academic performance and FLA (e.g., Li & Wei, 2023; Shao et al., 2020; Sun & Zhang, 2023; Teimouri et al., 2019; Zhang, 2019; Zhao & Wang, 2023). For instance, Zhang (2019) conducted a meta-analysis examining the correlation between FLA and foreign language (FL) performance, identifying a significant link between the two. The highest association was found between FL listening performance and FL listening anxiety. In contrast, test anxiety and FL reading anxiety correlated less strongly with FL achievement than other types of anxiety. Regardless of the FL competency of the FL learners, the anxiety-performance correlation of the various FL proficiency groups stayed constant, suggesting that the importance of FLA cannot be overlooked. Additionally, multiple studies investigated the influencing factors of FLA, such as the learning environment (Li et al., 2024), and findings indicated that males generally experienced lower test anxiety (Li et al., 2024). MacIntyre et al. (1997) argued that FL learners were prone to experience anxiety when they encountered frustration, while Kruk (2018) proposed that anxiety was more likely to occur in instances where there was disharmony in the relationship between learners and teachers.

Alleviating students' FLA requires certain teaching interventions. However, few studies comprehensively summarized the effective measures to palliate students' FLA. While a number of studies concentrated on students' learning processes, the pivotal role of educators in mitigating students' FLA has often been overlooked (Tang, 2022). In the exploration of the interplay between mobile phone addiction, self-esteem, and English as a foreign language (EFL) writing anxiety, Song et al. (2023) provided empirical support for the efficacy of preventative strategies aimed at reducing EFL writing anxiety. According to Tang (2022), test anxiety was most significantly influenced by teaching methods, with EFL teachers playing a vital role in addressing students' FLA. The present study elucidates the factors that cause students' FLA from the control-value theory perspective and proposes effective pedagogical suggestions.

## 2.2 FLA in Online Learning

Due to inadequate training in online teaching and learning and limited Internet connection, both teachers and students have encountered challenges in online learning environment (Okyar, 2023; Yang & Yuan, 2023). Not only might students lack familiarity with instructional technology, but many of them could also be unmotivated to study online, potentially resulting in negative perceptions of online education (Russell, 2020). In this context, students may be less reluctant to express their nervousness than in traditional classrooms full of their peers due to the anonymity afforded by distance learning and the individualized interaction with their professor or tutor (Pichette, 2009). According to Okyar's (2023) report, the majority of students displayed a passive attitude towards online learning, expressing a preference for face-to-face English instruction.

For many years, FLA has been the focus of both theoretical and empirical inquiry. The relationship between FLA and L2 achievement remains a focal point of numerous inquiries within the area (Teimouri et al., 2019). Sun and Zhang (2023) analyzed college students' emotional changes in online learning. However, there is a paucity of research examining the possible correlation between online FLA and students' gender and academic year level.

Hu et al. (2022) explored the impact of anxiety in the context of online learning, but further investigation was warranted to determine whether the anxiety stemmed from external factors (such as lack of social connection and fear of the virus) or internal factors (such as computer anxiety and academic pressure). Similarly, Russell's (2020) study revealed a notable reduction in the level of participants' anxiety by the conclusion of the course compared to the commencement of the semester. Nonetheless, it was difficult to determine whether this decrease in anxiety was caused by peer support discussions, their satisfaction with the comfort of the online academic environment, or extensive communication with native speakers (Russell, 2020).

To summarize, extant studies on learners' emotions generally focus on the traditional classroom teaching approach under the supervision of teachers, but little research has looked into the learning anxiety situation of college English online courses. Additionally, little has been done to investigate the role of learners' external factors on anxiety, with even less known of the extent and influence of L2 emotion in online class environment. Therefore, further research is needed to examine foreign language learners' online learning anxiety and its influencing factors, in order to shed light on online teaching and learning.

## 3. Research Questions

Taking the score of the anxiety scale as the dependent variable, and gender and academic year level as between-subject variables, and combining the information from semi-structured interviews, the current study sought to delve into the overall online anxiety situation and potential influencing factors among Chinese English majors.

The following research questions guided the study:

- (1) What is the anxiety level of Chinese English majors in online learning? Do Chinese English majors' online learning anxieties vary depending on their gender and academic year level?
- (2) What are the underlying factors causing Chinese English majors' anxiety in online learning?

#### 4. Methods

##### 4.1 Participants

The participant pool consisted of 264 Chinese English majors at universities in China, and their ages ranged from 18 to 22. All participants were fluent in Chinese and learned English as their foreign language. None of them had ever been abroad to travel or pursue education. In the analysis of anxiety scores, 30 males and 30 females were randomly selected to examine the impact of gender on their online learning anxiety. Moreover, participants were divided into four groups by academic year level, with 50 participants in each group, to investigate the impact of academic year level on online learning anxiety among participants. In the analysis of semi-structured interviews, 8 participants were chosen based on the principle of purposive sampling, with 4 males and 4 females ranging from freshmen to seniors. These participants used Tencent Meeting, Tencent Classroom, Rain Classroom, DingTalk, and other platforms to undertake online learning courses. Furthermore, all participants had the right to obtain informed consent, and the questionnaire they filled out was kept confidential and in compliance with ethical standards.

##### 4.2 Instruments and Procedure

This research primarily adopted a quantitative approach utilizing a questionnaire, supplemented by semi-structured interviews. To ensure an accurate portrayal of classroom emotions, the questionnaire was administered in Chinese and comprised three distinct sections. The first section requested basic personal information. The anxiety scale reconstructed by Du (2019) was used in the second portion to assess internal consistency reliability (Cronbach's  $\alpha = 0.91$ ) (Du, 2019). The third part was a multiple-choice question, which aimed to investigate the influencing factors of participants' online learning anxiety.

###### 4.2.1 The Reconstructed Anxiety Scale

This study adopted Du's (2019) reconstructed scale. The scale included 21 items, which were divided into three categories: "classroom anxiety", "academic anxiety" and "communication anxiety". A 5-point Likert scale was used for the questionnaire; 1 meant "Strongly disagree", 2 meant "Disagree", 3 meant "Uncertain", 4 meant "Agree" and 5 meant "Strongly agree" (Du, 2019). Reverse scoring was used for questions 4, 8, and 11. The higher each dimension's score and the whole score's cumulative score, the greater the English learning anxiety. This scale was innovative and scientific with high reliability and validity.

In numerous studies, the specific values of anxiety levels were not delineated, often making the anxiety level a rough concept. This study unified the scoring criteria for the level of anxiety in previous studies, taking the average of the reference criteria for these studies as the criteria for dividing high, medium, and low anxiety levels.

Kurniasih et al. (2022) required scores of 65 and 50 for high, medium, and low anxiety levels, respectively, with an average score of 3 and 2 for each item. According to Horwitz (2007), an average score of 4 and 3 per item was the standard for dividing high, medium and low anxiety levels. Marcos-Llinás and Garau (2009) used scores of 130–155 indicating high anxiety, 85–126 indicating moderate anxiety, and 47–83 indicating low anxiety. Taking the median of 128 between 126 and 130 as the score for dividing high and medium anxiety levels, and then taking the median of 84 between 83 and 85 as the standard for dividing medium and low anxiety levels, the average score for each item was 4 and 3. This study took the average of the reference criteria for these studies as the criteria for dividing high, medium, and low anxiety levels, with an average score of 4 and 3 per item, resulting in a total score of 84 and 63.

###### 4.2.2 Semi-Structured Interviews

Semi-structured interviews were conducted through face-to-face conversations or voice calls. Prior to the interviews, each participant was given an explanation of the purpose of the interview. We recorded the entire session after obtaining the consent of the participants. In the process of sorting out the interview contents and materials, the participants were numbered and their conversations were recorded. The interview mainly focused on the anxiety feeling, influencing factors and specific experience of foreign language online class.

##### 4.3 Data Collection

###### 4.3.1 Collection of Questionnaire Data

The questionnaire was distributed in the middle of the semester through "Wenjuanxing", a professional platform

for issuing and collecting questionnaires. Participants filled in the questionnaire anonymously. If the answer time was 30 seconds or less, it was considered an invalid questionnaire. A total of 264 questionnaires were collected, with 262 being returned, resulting in a 99.2% effective response rate.

#### 4.3.2 Collection of Semi-structured Interview Data

8 participants were interviewed in a semi-structured manner. The selection of interviewees was based on the principle of purposive sampling, ensuring that each group consisted of 1 male and 1 female, and following the principle of their voluntary participation and free time. The interview time of each person ranged from 5 minutes to 10 minutes, with a total of 47 minutes or so. Moreover, the interviews were conducted one by one.

#### 4.4 Data Analysis

Amos 28.0 was used to conduct confirmatory factor analysis (CFA) in order to assess the construct validity of Du's (2019) scale in the survey. When  $\chi^2/df < 5$  (Marsh & Hocevar, 1985), TLI and CFI  $> 0.90$  (Byrne, 2011), and RMSEA  $< 0.08$  (Browne & Cudeck, 1992) were provided, the model fit was deemed appropriate. This study's modified model more accurately represented the data and fitted the data with a good fit ( $\chi^2/df = 2.389$ , TLI = 0.907, CFI = 0.922, RMSEA = 0.073). This scale was tested for reliability using SPSS 26.0. Cronbach's  $\alpha$  above 0.70 indicated sufficient internal consistency of the scale, confirming its excellent reliability (Cronbach's  $\alpha = 0.94$ ), consistent with findings from Zhao and Wang's (2023) study.

Two main phases of data analysis were conducted: the examination of questionnaire data and the analysis of semi-structured interview data. The data was first analyzed using SPSS 26.0. A descriptive statistical analysis was conducted to assess the level of anxiety experienced by Chinese English majors during online learning. An independent samples t-test was used to examine the potential influence of gender on Chinese English majors' anxiety related to online learning. A one-way ANOVA was performed between groups to investigate potential changes in Chinese English majors' anxiety related to online learning according to academic year levels. In addition, the factors that caused participants' FLA in online learning were summarized. In the second stage, the content of the interviews was annotated, and a qualitative analysis was conducted through note-taking to supplement and verify the results of the quantitative data. The interview recordings were transcribed, and the causes, impacts and strategies for dealing with Chinese English majors' anxiety during the period of online learning were performed.

### 5. Results

#### 5.1 Participants' Overall Anxiety Level in Online Learning

Table 1. General anxiety status of participants in online learning (N = 262)

Chinese English majors' Online Learning	N	Score Interval	Mean	SD	Median	Max	Min
Anxiety	262	21–105	66.36	14.78	66	105	21

SPSS 26.0 was used to obtain descriptive statistics on each variable, and the results were displayed in Table 1, revealing that the participants were at a moderate level of FLA ( $63 < \text{Mean} = 66.36 < 84$ ). The participants' total anxiety scores reached the maximum and minimum values of the score interval (Max = 105, Min = 21). Furthermore, the standard deviation, median value and other data in Table 1 also reflected the individual differences in the emotional experience of the respondents.

Table 2. General anxiety status of different participant groups in online learning

	N	Percent	Mean	Max	Min
High Anxiety Group	26	9.92%	92.15	105	85
Medium Anxiety Group	143	54.58%	71.45	84	63
Low Anxiety Group	93	35.50%	51.32	62	21

The participants were assigned to three groups based on the total score of each participant on the scale reconstructed by Du (2019) in order to determine the overall FLA level of the participants in online learning. The first group was classified as high anxiety with their anxiety scores over 84; the second group was classified as medium anxiety with their anxiety scores between 63 and 84; and the third group was classified as low anxiety with their anxiety scores lower than 63. Table 2 demonstrated that 26 Chinese English majors (9.92%) had anxiety

scores above 84 in online learning, and 143 participants (54.58%) had moderate anxiety, displaying that most participants were in a state of moderate anxiety; 93 participants had mild anxiety, accounting for 35.5%. The data showed that approximately 64.5% of the participants were experiencing a moderate level of anxiety, which was concerning and warranted attention from teachers and relevant management departments.

Table 3. Online learning anxiety of participants in different dimensions

Dimension	Item	Mean	SD
Communication Anxiety	1 7 8 11 12 16 18 20 21	3.09	0.74
Academic Anxiety	3 4 6 14 15 17 19	3.10	0.80
Classroom Anxiety	2 5 9 10 13	3.42	0.78

Some participants exhibited lower self-assurance and were more prone to anxiety compared to others. They found it difficult to maintain focus in class or when presented with academic assignments. They were worried about making mistakes, seeming foolish and dreading rejection, negative evaluations and critical feedback (Pichette, 2009). The refinement of the specific questionnaire items revealed that, as shown in Table 3, Chinese English majors exhibited a high degree of “classroom anxiety”, surpassing levels of “communication anxiety” and “academic anxiety”. However, there was a minimal disparity between “communication anxiety” and “academic anxiety”.

The majority of the participants interviewed reported that online learning induced greater levels of anxiety than traditional offline learning, with offline face-to-face communication and learning fostering a heightened sense of physical and psychological well-being. However, it was noted by some participants in the interview that the digital learning environment was conducive to foreign language acquisition. Particularly, online autonomous learning provided participants with chances to exercise control over the timing, location, pace, and method of their learning. The interviews showed that most participants had insomnia, loss of appetite, physical and mental fatigue, depression, brain tension and other symptoms when they experienced FLA in online learning. Nevertheless, it was evident that excessive apprehension related to foreign language acquisition detrimentally affected participants’ physical and mental health. In response to varying levels of anxiety, some participants adopted a negative stance or took an attitude of avoiding it, while a large number of participants redirected their focus by engaging in sports, listening to music, and other activities to alleviate stress.

### 5.2 Participants’ Online Learning Anxiety with Respect to Different Genders

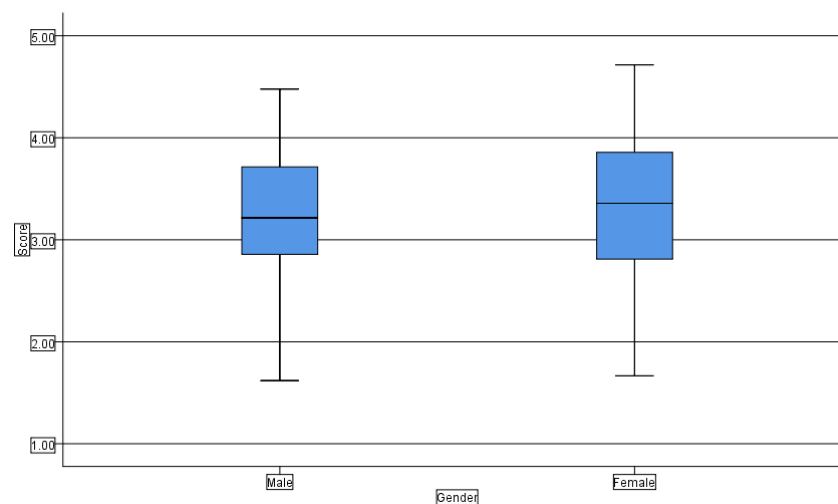


Figure 1. Participants’ online learning anxiety with respect to different genders (N = 30)

In order to investigate potential differences in Chinese English majors’ online learning anxiety across genders, 30 males and 30 females were randomly selected. As shown in Figure 1, female learners (Mean = 3.30, Max = 4.71, Min = 1.67) had greater anxiety levels than male learners (Mean = 3.25, Max = 4.48, Min = 1.62). At the same time, the fluctuation of anxiety levels in females (SD = 0.81) was greater than that in males (SD = 0.69).

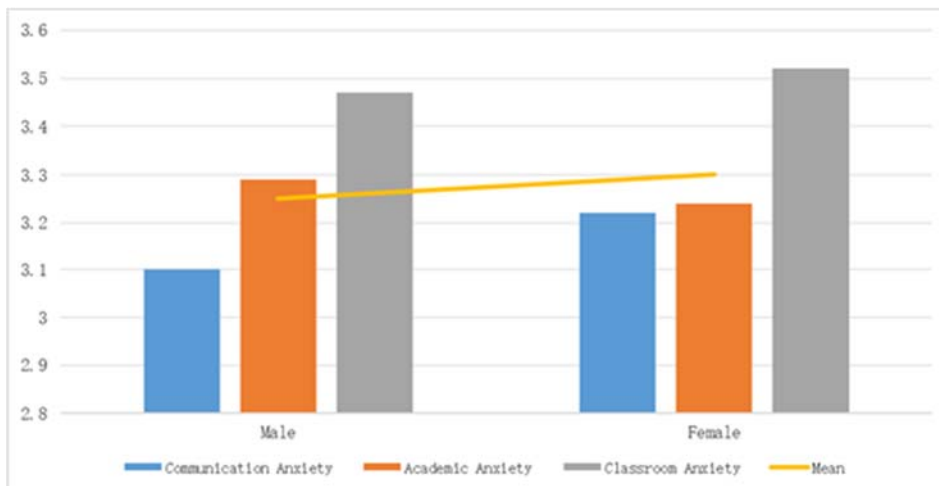


Figure 2. Online learning anxiety of participants with respect to different genders in different dimensions (N = 30)

As shown in Figure 2, for both gender groups, the degree of “classroom anxiety” was the highest, and also higher than the overall average anxiety, and the average scores of “classroom anxiety”, “academic anxiety”, and “communication anxiety” gradually decreased (Mean (M) = 3.25, M (F) = 3.30, Classroom Anxiety (M) = 3.10, Classroom Anxiety (F) = 3.22, Academic Anxiety (M) = 3.29, Academic Anxiety (F) = 3.24, Communication Anxiety (M) = 3.10, Communication Anxiety (F) = 3.22). It was observed that males exhibited higher levels of “academic anxiety” than females, surpassing the average level of males’ anxiety. Conversely, their levels of “classroom anxiety” and “communication anxiety” were comparatively lower than those of females. Furthermore, both male and female participants demonstrated higher levels of “classroom anxiety” than their respective average anxiety scores, indicating a significant prevalence of apprehension with the classroom environment across genders.

Table 4. Independent samples t-test of anxiety levels between two gender groups

Levene’s Test for Equality of Variances		t-test for Equality of Means					95%CI	
F	Sig.	t	df	p	MD	SE	Lower	Upper
.928	.339	-.245	58	.807	-.476	.195	-.437	.342

As shown in Table 4, the variance of the two samples was homogeneous (F = 0.928, P (Sig) = 0.339 > 0.05). The findings presented that there was no noticeable distinction between the two gender groups regarding their FLA levels in online learning (t = -0.245, p > 0.05). This indicated that Chinese English majors’ level of anxiety in online learning was not significantly influenced by their gender. This aligned with the findings of Jiang and Dewaele (2019) and Matsuda and Gobel (2004). Despite the changing teaching methods, teaching platforms and other factors, the study did not discern any significant differences at the FLA levels among Chinese English majors of different genders. Therefore, gender was not a notable influencing factor of Chinese English majors’ FLA in online learning.

Interviews demonstrated that both male and female participants exhibited FLA in online learning, and the anxiety degree was generally higher than that of offline learning. However, the specific anxiety level varied from person to person, and gender was not the main influencing factor.

5.3 Participants' Online Learning Anxiety with Respect to Different Academic Year Levels

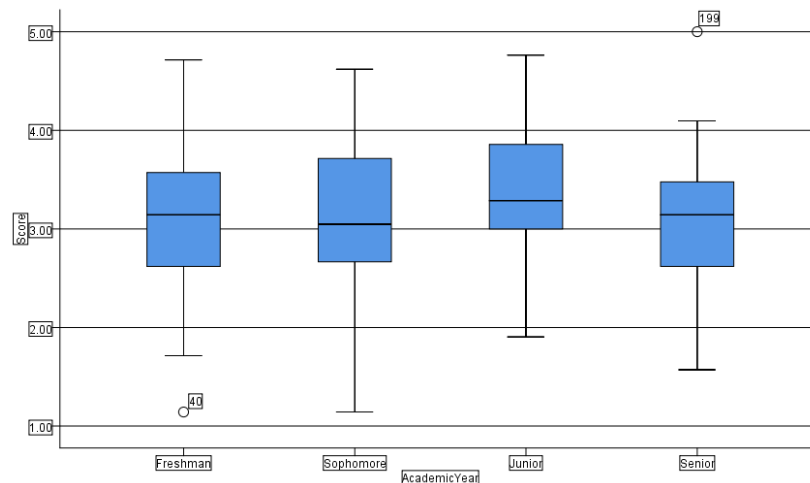


Figure 3. Participants' online learning anxiety with respect to different academic year levels (N = 50)

50 participants were randomly selected from freshmen to seniors respectively. Figure 3 showed that their anxiety was at a medium level. Compared with the other three groups, the FLA level of senior group was the lowest and that of junior group was the highest (Mean (Fr.) = 3.14, Mean (So.) = 3.12, Mean (Jr.) = 3.42, Mean (Sr.) = 3.14, Max (Fr.) = 4.71, Max (So.) = 4.62, Max (Jr.) = 4.76, Max (Sr.) = 5.00, Min (Fr.) = 1.14, Min (So.) = 1.14, Min (Jr.) = 1.90, Min (Sr.) = 1.57, SD (Fr.) = 0.73, SD (So.) = 0.72, SD (Jr.) = 0.62, SD (Sr.) = 0.62), which may be related to the high pressure, heavy academic burden and greater academic pressure of junior participants.

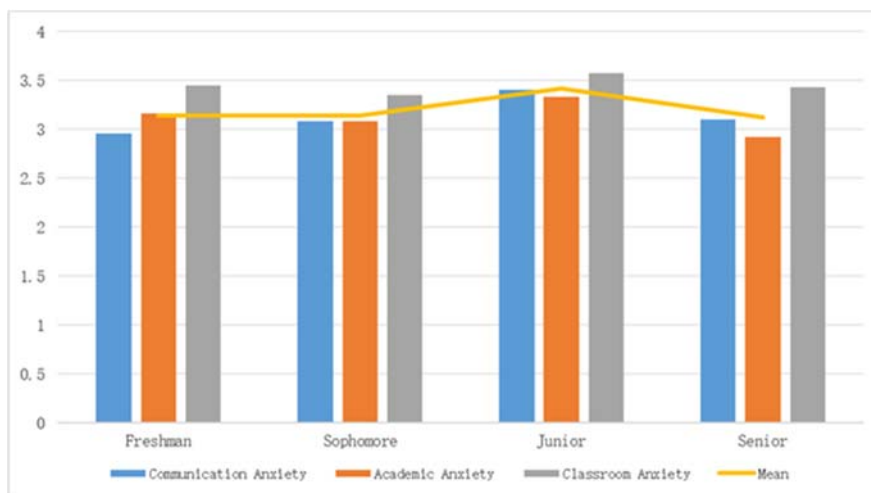


Figure 4. Online learning anxiety of participants with respect to different academic year levels in different dimensions (N = 50)

As shown in Figure 4, Chinese English majors' "classroom anxiety" was higher than their "academic anxiety" and "communication anxiety" in 4 groups (Classroom Anxiety (Fr.) = 3.45, Classroom Anxiety (So.) = 3.35, Classroom Anxiety (Jr.) = 3.57, Classroom Anxiety (Sr.) = 3.43, Academic Anxiety (Fr.) = 3.16, Academic Anxiety (So.) = 3.08, Academic Anxiety (Jr.) = 3.33, Academic Anxiety (Sr.) = 2.92, Communication Anxiety (Fr.) = 2.96, Communication Anxiety (So.) = 3.08, Communication Anxiety (Jr.) = 3.40, Communication Anxiety (Sr.) = 3.10). Among the participants, senior individuals experienced the lowest levels of "classroom anxiety" and "academic anxiety", potentially attributed to their advanced stage in completing academic coursework. Conversely, junior participants displayed the greatest levels of apprehension across all three categories, indicating Chinese English majors' phase-specific manifestation of academic anxiety at different stages of their academic journey.

Table 5. One-way ANOVA of anxiety levels among four academic year groups

	Sum of Squares	df	Mean of Squares	F	Sig.
Between Groups	3.045	3	1.015	2.233	.086
Within Groups	89.114	196	.455		
Total	92.159	199			

The homogeneity of the variance of the two samples was conducted ( $P = 0.593 > 0.05$ ). It can be seen from Table 5 that after a one-way analysis of variance between groups, the findings indicated a lack of significant variance in the extent of FLA across 4 different groups of Chinese English majors in online learning ( $p = 0.086 > 0.05$ ).

Additionally, through the Bonferroni correction for multiple comparisons, it was evident that anxiety was not much influenced by the level of academic year ( $p > 0.05$ ). The relevant interview data demonstrated that despite the variations in difficulty, form and content of foreign language online courses across 4 different groups, these aspects did not significantly affect the anxiety of Chinese English majors. The aforementioned findings demonstrated no statistically significant differences in Chinese English majors' anxiety levels related to online learning among the 4 groups.

#### 5.4 Factors Influencing Participants' Online Learning Anxiety

Through the analysis of the results of questionnaires and interviews, the factors affecting Chinese English majors' FLA were summarized in Table 6, which can be roughly divided into individual factors, teacher factors, peer factors, environmental factors and other factors, such as high curriculum pressure and boring learning contents. As shown in the table, participants' personal factors accounted for the largest proportion, followed by peer factors and environmental factors, and teacher factors exerted little influence on participants' online learning anxiety.

Table 6. Factors influencing participants' online learning anxiety

Individual factors	Teacher Factors	Peer Factors	Environmental Factors	Other Factors
Poor self-discipline (167)	Poor teaching methods (11)	Less interaction with peers (46)	Unstable network environment (30)	High curriculum pressure
Learning style maladjustment (98)	Poor network skills (14)	Pressure caused by peers' performances (41)	Poor platform function and inconvenient operation of network equipment (16)	Boring learning contents
Weak learning motivation (127)	Too strict in teaching (15)		Noisy environment and irrelevant personnel interference (31)	
Weak basic knowledge (112)			Anxiety caused by the pandemic	
Lack of self-confidence (114)				
Poor network skills (19)				
Poor classroom performance (47)				

##### 5.4.1 Individual Factors

In the context of online learning, the participants' proactive engagement proved to be of paramount importance. Through interviews, it was revealed that participants achieving high academic performance considered that online learning offered them greater flexibility in managing their time. However, those with lower academic achievements showed insufficient motivation for online learning. For instance, they lacked self-confidence and self-discipline in overcoming challenges, which consequently hindered their learning outcomes compared to traditional offline learning methods. Some participants reported that they could not keep up with the teacher's lecture content during online classes due to easy access to other websites on computers and mobile devices. According to responses gathered from the questionnaire, a majority of participants, over 50% attributed anxiety experienced in online learning primarily to a lack of self-control. Nonetheless, it was noteworthy that online language learners usually engaged with audio and video materials to interact with their instructors and fellow participants in the language they were studying (Pichette, 2009).

Furthermore, due to varying levels of familiarity for teachers with different live-streaming platforms, participants must be able to adeptly make use of these programs during online learning classes. Participants were expected to review course instruction materials prior to class under the framework of the network multimedia online teaching



paradigm. If the preparation was not completed on time or effectively, it was difficult for participants to keep up with the course progress. Thus, they failed to understand the contents and questions raised by the teacher, resulting in great classroom learning anxiety.

#### 5.4.2 Teacher Factors

Interviews and questionnaires showed that teacher factors had little impact on Chinese English majors' anxiety in online learning. Most participants agreed that the online learning approach was primarily dependent on the participants themselves. In addition, most teachers quickly adapted to online teaching and adopted flexible assessment methods and teaching methods.

However, some teachers had little communication and interaction with participants, who felt a low sense of existence and even were embarrassed to ask teachers for help when they were confused. Some teachers frequently asked questions or conducted tests in class, or had too strict attitudes when correcting participants, resulting in an extremely tense classroom teaching atmosphere. Despite the fact that language education was provided online nationwide due to the global pandemic, the majority of language instructors lacked sufficient professional development in the design, execution, and implementation of online language programs (Russell, 2020).

#### 5.4.3 Peer Factors

One of the key elements influencing Chinese English majors' anxiety during the online learning process was the peers themselves. Several participants expressed that online learning alone lacked interaction with peers, and there were few links between group presentation, group interaction and mutual discussion in class. Nonetheless, these connections were crucial for raising classroom engagement and reducing participants' stress levels related to their studies. Certain participants illustrated that in the process of online learning when faced with questions from teachers, their inability to provide answers extremely caused their anxiety. However, students felt a sense of security with peers nearby in traditional classrooms, encouraged by the presence of peers with whom they could interact and exchange ideas. This peer interaction played an important role in mitigating Chinese English majors' anxiety in the learning environment.

#### 5.4.4 Environmental Factors

A smooth network infrastructure served as the cornerstone of effective online course learning. However, due to the instability of the network environment, participants were compelled to withdraw from the virtual classroom, which led to their significant anxiety. All participants commented that communication across the screen was definitely not as effective as face-to-face communication. The time delay in answering questions and receiving feedback from teachers and the loneliness and emptiness caused by online dialogue often led to increased anxiety. Additionally, participants attended online classes in different places. Some environmental factors exacerbated participants' anxiety levels, such as noise and even unwanted interference from unrelated personnel during online lectures or learning sessions.

The COVID-19 pandemic was a global public health emergency that jeopardized people's mental health. It had also fundamentally altered university operations, particularly with regard to the global transition to online learning, which had profoundly affected participants' daily lives worldwide. Stress, worry, and despair were brought on by the abrupt and significant changes in daily activities for the participants (Babicka-Wirkus et al., 2021; Leung, 2023). The pandemic itself brought great anxiety to people and also affected the level of participants' FLA in online learning.

## 6. Discussion

### 6.1 Interpretation of the Findings

**Research question 1:** What is the anxiety level of Chinese English majors in online learning? Do Chinese English majors' online learning anxieties vary depending on their gender and academic year level?

This study found that Chinese English majors experienced heightened levels of anxiety in the context of online learning, as evidenced by an in-depth survey and analysis of their anxiety. It was noted that the manifestation of "classroom anxiety" was the most prominent, followed by "academic anxiety" and "communication anxiety". This result agreed with Zheng et al.'s (2016) research. Zheng et al. (2016) also found that college students' English classroom anxiety was an overall comprehensive factor. On one hand, English classroom anxiety was not only caused by oral communication anxiety, but a combination of many types of anxiety; on the other hand, spoken communication was no longer the main focus of English classroom instruction in online learning because interaction between students and their teachers, as well as among the students themselves, were less frequent in online classes.

Despite data that indicated gender and race or ethnicity increased the incidence of anxiety disorders, epidemiological research had not yet focused much on the possible interactions between gender and race in the promotion of psychopathology (Mclean et al., 2011). Gender variations in anxiety levels when utilizing coping mechanisms for FLA were investigated by Kao et al. (2017). Kao et al.'s (2017) survey showed that groups with varying degrees of anxiety did not utilize different coping strategies, and no noticeable relationship was found between gender and anxiety levels (Kao et al., 2017).

The influence of participant selection on research outcomes is also noted. In the current study, the daily training of the participants majoring in English improved their oral English and English learning habits in the process of learning college professional courses. Furthermore, it was observed that participants' overall interest in English learning did not exhibit significant differences generally, which demonstrated a normal phenomenon for Chinese English majors.

Online learning, as a nascent pedagogical approach for foreign language majors, requires all students to take time for adaptation. Hence, senior students did not have substantial advantages in this adaptation process.

**Research question 2:** What are the underlying factors causing Chinese English majors' anxiety in online learning? This study found that a variety of factors, involving the individual learners, their teachers, and peers as well as the learning environment, affected Chinese English majors' online learning anxiety. Among them, individual factors emerged as predominant factors, mainly notably including poor self-discipline, weak learning motivation, necessity for adjustment in learning styles, and deficiencies in self-confidence. Besides, insufficient interaction with peers was also one of the major causes of online learning anxiety.

Internal factors, external circumstances, and learning modalities all influence learning success. Teacher assistance was critical in the online learning environment for students' emotional well-being. The teacher-student relationship, based on instructors' care, encouragement, and support, proved pivotal in fostering students' engagement. Such supportive relationships not only facilitated the interaction and communication with instructors, but also engendered feelings of concern, respect, and strong learning motivation and self-confidence, thereby mitigating online learning anxiety (Tang, 2022).

Family factors were among those affecting Chinese English majors' online learning anxiety. Compared with elementary and secondary school students, college students displayed higher degrees of emotional difficulties and stress related to changes in the social and educational environment (Wang et al., 2020). Babicka-Wirkus et al. (2021) found that friends and family provided the majority of the emotional support that students required, with 38% and 26% of the total.

The anxiety caused by the pandemic itself was also an important factor for students' FLA. Their anxiety, despair, and stress were caused by abrupt and significant changes in their everyday functioning. The findings of the present study aligned with Babicka-Wirkus et al. (2021), which indicated that students' utilization of non-adaptive stress management strategies could potentially exert a lasting impact on their academic performance, as well as on their overall physical and emotional well-being. Such influence underscores the critical importance of fostering effective coping mechanisms conducive to academic success and psychological health outcomes. Consequently, it was imperative to pay particular attention to the group of university students who had extreme learning anxiety and low satisfaction with online education and to provide tailored psychological intervention so that the intensity of negative feelings would be reduced during specific periods.

## *6.2 Implications for Online Foreign Language Teaching and Learning*

### *6.2.1 Implications for Students' Online Foreign Language Learning*

First of all, college students need to develop correct cognition of anxiety. Mild worry, especially before a test, can help people become more concentrated, while the learning process is hampered by excessive worry.

Second, students should enhance self-confidence and self-control, and try to reduce the use of avoidance strategies in case of anxiety. Students need to enhance self-confidence and good adaptability through their efforts, and appropriately improve their learning strategies and learning methods. University students can alleviate anxiety by talking to others, taking a deep breath, doing exercise, listening to music, and using positive self-talk, and they should adjust their learning methods in time.

Last but not least, students should maintain cooperative learning with peers. In order to complete the course on time, learners must allot enough time, ask for assistance when necessary, and maintain their motivation (Russell & Murphy-Judy, 2020). Several students mentioned in the interview that online learning reduced communication with peers, resulting in more tension when answering questions in class or completing homework after class. It can be seen that cooperative learning is an effective way to create a relaxed learning atmosphere. Students can

strengthen communication with peers and seek help from others in time when encountering problems, to reduce loneliness and improve the efficiency of online learning.

### 6.2.2 Implications for Online Foreign Language Teaching

First, exploring the teaching mode of live stream courses is the key to carrying out online teaching. For example, teachers can assign group work to enhance the connection and engagement between students, and correct errors in the way of students' mutual evaluation, so as to avoid students receiving negative evaluations directly from teachers and reduce their panic about answering questions in class. At the same time, with the help of the characteristics of the live streaming chat room, teachers can hand over some teaching content to students for preparation, so that students can experience the feeling of "online live streaming", which not only achieves the purpose of autonomous learning, improves students' experience, but also improves students' interest in learning.

Teachers could also improve their relationship with students in order to lessen students' anxiety about online English classes (Tang, 2022). In addition to a strong feeling of self-efficacy in the classroom, teachers should help students develop strong senses of self-efficacy and self-respect during the online learning process. Learning a foreign language requires learners to overcome emotional obstacles in addition to cognitive ones. For instance, teachers can chat with students through video before class to timely understand students' learning status and psychological conditions.

Furthermore, Gacs et al. (2020) recommended that instructors provide clear roles for the teacher and the student and assist students in learning how to navigate the course. In the planning and development of the online learning environment, ways to acquire technical support, browse course offerings, and efficiently use educational technology are all required for this course, as underscored by Russell and Murphy-Judy (2020). These elements are indispensable for a successful online course, particularly considering the inherent challenge of providing quick feedback to students regardless of the day or night of a day.

As to the methods and strategies to reduce students' overall language anxiety, teachers can ask students to share their worries aloud in pairs or small groups, or they can write them down in a notebook (Gregersen & MacIntyre, 2014; Horwitz et al., 1986). Using voice or textual discussion boards on an online platform is another way to mitigate students' learning anxiety. Moreover, instructors can suggest that students engage in some recreational activities that help them relax both physically and mentally (Horwitz et al., 1986). Taking deep breaths or listening to English songs may be beneficial for students to reduce stress. Meanwhile, during remote online learning, it is also helpful for teachers to play videos of yoga training or mindfulness relaxation and stress relief for students. The utilization of these videos, particularly those presented in a foreign language, can not only facilitate students' FL acquisition but also enhance their overall language sense and cultural awareness.

### 6.3 Limitations and Suggestions

There are several limitations in this study. First, the sample size of this study was relatively small and not much comprehensive. Future research needs to expand the sample size to make it more representative. Second, being cross-sectional in nature, this study offered a snapshot of participants' online learning anxiety levels. Given that learning anxiety is constantly changing throughout the learning process, the degree of statistical anxiety might vary slightly; for instance, students may experience a higher level of anxiety towards the end of the term. Longitudinal studies could provide insights into the intricate and dynamic connections between learners and their emotional states, exploring the changes in their online learning anxiety levels over time as the course progresses.

## 7. Conclusion

This study examined the anxiety levels of Chinese English majors in online courses using a combination of semi-structured interviews and a questionnaire. It found that the general level of the participants' anxiety was medium and that neither gender nor academic year level was a significant determining factor. The factors influencing Chinese English majors' anxiety in online learning involved individual factors, teacher factors, peer factors, and environmental factors. Among these, the primary causes of anxiety in Chinese English majors were personal issues such as a lack of confidence, poor self-discipline, and low learning motivation. This study provides insight into online teaching and learning strategies. For example, teachers should pay attention to increasing communication and interaction with students in online teaching to alleviate anxiety, improve the learning outcomes, and encourage the physical and emotional well-being of the students.

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### Authors' contributions

Yujie Wang, Prof. Lianrui Yang and Prof. Hongshan Yin were responsible for study design, data collection and data analysis. Yujie Wang drafted the manuscript, and Prof. Lianrui Yang and Prof. Hongshan Yin revised it. All authors read and approved the final manuscript.

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The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Obtained.

### Ethics approval

The Publication Ethics Committee of the Canadian Center of Science and Education.

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### Provenance and peer review

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### Data availability statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

### Data sharing statement

No additional data are available.

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