Original Paper

A Study of Emotions and Attitudes of Non-English Majors toward Online Writing Assessment System

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Abstract

This paper takes non-English majors as the research participants to explore the characteristics of their emotions and attitudes, the influencing factors, their coping strategies, and the impact of the above aspects on their English writing learning during the online English writing assessment. Through conducting semi-structured interviews, the study found that: first, when non-English majors use online English writing assessment, their emotions and attitudes are affected by multiple subjective and objective factors, and are mainly positive; Second, the strategies used by non-English majors are mostly aimed at the lexical and grammatical errors in the text, and cover the skills of English writing; Third, the above aspects have played a certain role in promoting students' English learning and improving their English learning and application ability.

Keywords

online writing assessment, emotion, attitude, strategy

1. Introduction

Higher education is related to the quality of talent, to the exchange and mutual understanding between China and other countries in the world, and even to China's engagement in the reform and construction of the global governance system. Foreign language teaching is indispensable in higher education. Therefore, it needs to accommodate the changes in the economy and society and the development of national strategies (Wu, 2019).

What's more, with the development of electronics engineering and computer science, all fields of society have been affected to varying degrees. In this context, education, which is regarded as an integral part of human social life, has also undergone profound changes. New forms of education, such as computer-assisted instruction (CAI) and computer-assisted learning (CAL), have emerged gradually (He, 2019). What's more, after the outbreak of the pandemic all around the world, traditional offline

teaching halted and online education develops rapidly, with relevant online teaching and assessment, classroom activities, and platform construction. While the post-epidemic era will see a return to offline teaching, online education still plays an important role (Wen and Yang, 2020). Thus, it's necessary to accelerate the research and application of new technology in foreign language education at China's universities (Zhong, 2021).

Emotion has always been a hot issue in language teaching and learning for years. In the past, it was treated as a private matter. As a matter of fact, it's social-constructed. The setting of the learning environment, models for teaching, language education policy, and individual factors, such as teacher's instruction, learners' experience and perspective, may all have an impact on the construction of certain emotions (Swain, 2013). Second and foreign language classes evoke various emotions, such as enjoyment, anxiety, anger, hope, hopelessness, approval, and disapproval. These emotions and attitudes can have a profound impact on students' learning strategies and achievements by directing cognitive processing, arousing or refraining students' motivation and initiative, as well as promoting or impeding their self-regulation and use of relevant learning strategies (Shao et al., 2019).

Besides, attitude is also an important issue in the research. Rasool and Winke (2019) explored undergraduates' attitudes and learning motivation in multilingual Pakistan. Results of their study indicate that students in such a context regard English as an official language and medium of examination, and they have strong willingness to learn English. Chen and Yu (2019) carried out a case study to investigate changes in students' attitudes and engagement in collaborative writing and revealed the changes influenced interaction patterns and the quality of their participation in solving problems in writing class. Furthermore, their learning beliefs and perceived value are major factors shaping students' attitudes toward collaborative writing.

What should be noticed is that the current language assessment system is reforming right now. Modification in current assessment can foster students' key competencies, record their achievements in English learning cultivate their ability for self-reflection and evaluation, hence the assessment can be more student-oriented (Liu and Li, 2020). Similarly, Zheng (2021) revealed reform of English tests in universities is not only conducive to cultivating students' ability, but also helps them to clarify the purpose of English learning and arouse learning motivation.

The investigations mentioned above show advancement of electronics engineering and computer science, development of foreign language teaching in China, including changes in mode of instruction and language policy, and previous studies about students' emotions and attitudes, as well as reform of language assessment in China provide solid foundation for research on non-English majors' emotions and attitudes towards online writing assessment and prove that the research is feasible and meaningful to some extent.

However, nowadays, there are some problems about language assessment research and practice, which emerge and gain a lot of attention from scholars, experts and teachers in China in recent years. First, without reasonable criteria, it's difficult to measure students' real level. Second, test designers,

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including experts and teachers, don't pay enough attention to students, like learning experience and needs, their emotions and attitudes, and strategies (Peng, 2022).

Therefore, this study wants to explore emotions and attitudes that non-English majors may have when they take part in online writing test, like what they think of the system, how these two factors affect their writing and their coping strategies. The research article is divided into following parts: Section 1 concerns research background. Then, in section 2, there are previous studies related to the topic. Later, methodology will be presented in section 3. The rest parts will show research result, have discussion on it and make conclusion of this study.

2. Literature Review

Section 1 has presented the research background and purpose. The following section of this article will be a literature review of previous research concerning attitudes, emotions, and English writing teaching and learning online.

2.1 Emotions

In recent years, positive psychology leads the trend of investigating students' emotion in the process of language learning. Research shows that emotion and regulation strategies not only affect students' physical and mental health, but also have impact on their foreign language learning motivation and achievements (Dewaele and Pavelescu, 2021).

According to Pekrun et al. (2002) academic emotions refer to emotions related to learning process, learning achievements and teacher's instruction. Dong and Yu (2007) also indicated that academic emotions are the various emotional experiences related to students' studies, including those after academic success or failure, during classroom learning and in daily assignments.

Additionally, Pekrun (2006) also described academic emotions in terms of three dimensions: valence, activity, and goal-directedness. Valence distinguishes positive and negative emotions, and activity differentiates the degree of arousal of emotions, according to which academic emotions are classified as positive high arousal, positive low arousal, negative high arousal, and negative low arousal. The targeting goals tell apart the specific objects of arousal emotions, including academic achievement emotions, cognitive emotions, topical emotions, and social emotions. Academic achievement emotion is aroused by assessing the learning process or learning outcomes; cognitive emotion occurs in cognitive activities; topic emotion refers to the emotion aroused by learning content; social emotion refers to the emotion aroused by classmates' academic achievement and interpersonal relationships.

Under the influence of positive psychology, researchers explore academic emotions and the impact on foreign language learning from a holistic perspective. Research on academic emotion regulation strategies usually focuses on regulation strategies for negative temperament. Zhou, Zheng, and Tsai (2019) investigated the impact of peer review on students' emotions by analyzing their comments in an online platform used in an English writing course and revealed most of students have positive emotions, like satisfaction and appreciation, when receiving feedback from their classmates. However, some of

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them expressed negative emotions which regarded to disrespectful behavior of their classmates. Fan and Xu (2020) indicated students' emotional experience depends on the types of peer feedback they receive. In general, students had positive emotions and extensive engagement with the form-focused feedback. If the feedback is content-focused, they may feel confused and have negative emotional experiences. Liang, Gao, Xie, and He (2020) pointed out that students can adjust their negative emotions, such as anxiety and fear of difficulties, so that their anxiety level is within a reasonable range to improve the quality of their writing and peer review.

In conclusion, these studies have the following features. First, previous research focuses on the interpretation of related theories and the definition of relevant items, in contrast most recent studies are empirical, which applies those theories in language teaching practice to solve problems. Second, scholars pay more attention to the impact of learners' characteristics and experiences on generating certain emotions. Third, the research tends to be interdisciplinary. Sometimes, scholars refer to the theoretical framework and use research tools of other disciplines, which put linguistic research forward, particularly studies concerning language teaching and learning.

Although these investigations above enrich the understanding of students' emotions, which arouse in second or foreign language learning and are under the influence of multiple factors, but they do not deeply explore the types and characteristics of the emotions and strategies to regulate them.

2.2 Attitudes

Attitude may influence learner's own language use, learning and communicative strategy use, and achievements of language learning. It has been a hot topic in language education research for a long time. In addition, recently, teacher's attitude also gains lots of attention.

Attitude is affected by various factors. Hai and Wu (2020) explored the impact of learning experience on learners' EFL writing attitude in expressive writing practice. They indicated the formation of a positive attitude is influenced by expressive writing practice and discovery of inner self. Additionally, learner's level and self-confidence are also deterministic of the extent of positive attitude. What's more, teaching method and learner's sense of achievement contribute to positive attitude as well.

Attitude can also be socially constructed. Nowadays, English is treated as a global language. Nearly a quarter of the world's population speaks some English in daily life (Rosehan and Galooway, 2019). Additionally, in interpersonal communication, English learner's attitude is often shaped by their language background, like their first language and point of value (Scheffler, Horverack, Krzebietke and Askland, 2017). Therefore, it's necessary to re-evaluate English teaching and explore learner's attitude from socio-cultural perspective. Chan (2018) carried out an empirical study to investigate how affects gender L2 learners' attitudes towards English varieties in secondary school in Hong Kong. Results of this research show gender differences plays an important role in the formation of learners' attitudes. Female learners tend to be more confident and tolerate than male students and their attitudes are positive. Therefore, when designing a course or English language assessment, teacher and experts need to consider carefully.

What should be noticed is that in recent years, research on teacher's attitude emerges in the field of language education. Ahn (2014) explored teachers' attitudes towards Korean English (KoE) in South Korea and revealed the teachers have different attitudes towards different elements in KoE. Zhunussova (2021) implied that teachers' attitudes towards to English in higher education context and are related to dominant language ideologies and policy in local area. In other words, teachers' language attitudes are enacted in relation to their understanding and beliefs in multilingualism.

These studies present characteristics of attitudes, including learners' and language teachers' perspectives. From the research, it is evident in language teaching and learning, the formation of certain attitudes is a complex process and affected by multiple factors. However, in the above studies, other factors influencing the formation of learners' attitudes are seldom discussed. The mechanism behind it cannot be better revealed, as well as the relationship between attitude and other aspects of language learning.

2.3 Online English Teaching, Learning and Assessment

Online English teaching is a new pedagogical mode based on modern education information technology, combining student self-learning and teacher tutoring, to cultivate students' independent learning ability, and using teacher-student interaction as the primary means. During the pandemic, English teaching and learning in university has changed from the traditional offline class or blended one to the fully online one, which brings significant challenges to higher English teaching (Luo, Ma, & Yao, 2020).

In the past decade, in foreign language teaching, there have been lots of studies about the application of CALL and CAT, mainly focusing on the effectiveness of the technology, the influence of the technology, and online language assessment.

Xu, Banerjee, Ramirez, Zhu and Wijekumar (2018) examined the effectiveness of educational technology on English learners' writing quality. Technology applications produce a more significant effect on the quality of learners' writing than non-technology instructional method. Similarly, Brunfaut, Harding and Batty (2018) and Barkaoui and Knouzi (2018) explored the effect of teaching mode on test takers' performance and writing features in online tests. Test-takers generally hold more positive perceptions and learning experience when learning English and taking English writing test online. Moreover, writing mode also has significant effects on measures of fluency, lexical complexity, cohesion, and content, but not writing scores. In addition, it's easier for students to get helpful information and learning materials with the help of electronic engineering and computer science. Online English teaching avoids the embarrassment that may occur in the traditional offline classroom to some extent and helps to reduce the psychological burden, which provides opportunities for students to express themselves and give their feedback and opinions to classmates more freely.

Whether CALL can be successfully applied to foreign language teaching practice mainly depends on the receptive behavior of learners. The components of receptive behavior for new technology applications include ease of use, usefulness, specificity, and behavioral intention. Among them, specificity is a new component added in this study. The relationships among these components are

specificity, usability, and usefulness, which are the initiating, mediating, and determining factors of foreign language learners' behavioral intention to accept new technology applications. Therefore, teachers should focus on the identification of CALL applications used in English teaching and learning, as well as the development of students' information literacy (Li and Ni, 2017).

The effectiveness of new technology needs to be measured. Evaluation and testing are essential tools to test the efficacy of applying new technology like CALL in foreign language teaching, which ensures the quality of teaching and promotes the construction of foreign language course. Furthermore, diversifying evaluation means and assortment functions are the basis for establishing a robust foreign language assessment system. In this case, co-eporfolio occurs. It possesses several characteristics, such as openness of learning resources and dynamic operation. It not only helps students to promote their English learning but also benefits teachers to reflect on teaching process (Gu and Lu, 2015).

In one word, the focus of research on online English teaching, learning and assessment is to discuss the relationship of online English teaching, learning and assessment, and education technology, particularly computer-assisted language learning and computer-assisted teaching, whereas investigation on disadvantages of online English teaching, learning and assessment is insufficient. Furthermore, research should not be limited to a certain style and group of people.

3. Methodology

From the previous sections, it is evident that under the influence of multiple aspects, particularly advancement in computer science technology, transformation of traditional English teaching and learning during and after the pandemic, as well as support from government sectors, computer-assisted language teaching and learning is thriving. What's more, there is increasing emphasis on learner-centered instruction, learner's emotions, attitudes, experiences, and strategies have a continuously more important role in the study of language teaching. In addition, related research also constructs theoretical framework and provides examples for this investigation.

The following chapter will show the methodology, including research questions, participants, data collection and analysis, and procedures.

3.1 Research Questions

Referring to research in chapter 2, this study tries to figure out the characteristics of non-English majors' emotions and attitudes generating during online writing assessment, and the influencing factors. Besides, how those affections and thought have impact on writing learning and behaviors in the assessment, what kind of problems they may encounter in that process, as well as the strategies to take, should be taken into account. Therefore, based on the matters mentioned above, there are three research questions:

(1) What emotions and attitudes that non-English majors possess when using online writing assessment system?

(2) In what way these affections and thoughts influence their writing?

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(3) What are the coping strategies when they encounter problems and have difficulties in engagement with online writing assessment?

3.2 Research Context and Participants

As mentioned in the curriculum, writing is one of basic capabilities in English learning. Non-English majors need to take compulsory or selective English writing course in undergraduate years, aiming to have knowledge about the norms and skills of academic and practical writing, so that they have opportunities to develop their writing competence, hence they will be able to accomplish writing tasks in the assessment or in daily communication. The course usually lasts from two months to the whole semester. Recently, because of the pandemic, lots of universities choose to carry out online teaching and introduce measures to ensure that teaching activities can be conducted in an orderly manner.

Through opportunity sampling (Dörnyei, 2009), five participants were invited to take part in this study. Except for one student majored in foreign language, the other four students were all non-foreign language majors. The English level of these participants ranged from B1 to B2 (Council of Europe, 2001). Additionally, two of them once took IELTS and postgraduate entrance examination in Master of Arts in Translation. These five participants had various majors, different educational experiences, and different levels of English proficiency, which enhances the generalizability of the study results to some extent. Detailed information of them was shown in the table below.

Table 1. Information of Five Participants

Anonymity	Gender	Major	City
A	Female	Financial Management	Beijing
B	Female	Journalism	Beijing
C	Male	Information Management	Nanning
D	Male	Korean Language and Literature	Chengdu
E	Female	International Relations	Beijing

3.3 Instrument

This study applied semi-structured interviews. According to Mason (2002), as a research instrument with a certain degree of freedom and openness, semi-structured interview can maximize the exposure of participants' perspectives, understanding, and experiences toward research topics. What's more, as Wray and Bloomer (2006) indicated, questions in semi-structured interview are relatively standardized, which can narrow the differences in questions between interviews of different participants, thereby increasing the possibility of obtaining diverse perspectives on the same topic.

Before carrying out the interviews, a guideline was figured out (see Note). Questions in the guideline referred to Yu (2021) and Dong (2021). Regarding to research questions, apart from the introduction and conclusion, the interview questions in this study can be roughly divided into the following parts:

Part 1 is concerned about participants' experiences in English writing learning, engagement in online writing assessment, and opinions on online writing assessment, testing platforms and applications. Questions in part 2 are related to emotions and attitudes generating in online writing assessment and the influence. Part 3 pays attention to strategies that participants take in online writing assessment and English writing learning. Examples are presented below.

Table 2. Examples of Interview Questions

Part 1
Could you talk about your English learning experience before and after entering university?
What's your perspective toward online writing assessment?
Part 2
What's your feeling generating during online writing assessment?
Part 3
What coping strategies you may take in online writing assessment, English writing learning, and daily communication?

Due to the limitations of time and sample size, the number of research questions is not very large. During the interview, the questions were adjusted according to participants' answers to the previous one.

3.4 Procedures

This study began in October 2022 and ended in January 2023, lasting for three months. In October 2022, two non-English majors from Beijing were invited to participate in semi-structured interviews. Later, in January 2023, another four semi-structured interviews were conducted. The interviewees came from Beijing, Chengdu and Nanning and they were also non-English major students. Questions of the next three semi-structured interviews had been modified based on the results of the first two.

Every semi-structured interview lasted from 15 to 30 minutes. In addition, the interviews were conducted in text in WeChat, a popular social media in China. At the beginning of every interview, participants were asked what they think about the online writing assessment they used. In the following, there were the questions concerning their experience, difficulties, emotions and attitudes. Later, they talked about the coping strategies they may use in the process of participating in online writing assessment. In the end, they were asked how the strategies affect their English writing learning. At the end of interview, interviewees could ask follow-up questions or give their suggestions on the online English writing assessment platform they used.

On the basis of the above, three sources of the study were collected: participants' attitudes towards online writing assessment, the emotions, coping strategies. After interview, a qualitative analysis was

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carried out to answer research questions. By analyzing chatting records, cognitive strategies and affective strategies that students commonly used in peer review emerged. In addition, through qualitative analysis, it was also possible to know the characteristics of cognitive and affective strategies used by learners. Besides, it could understand learners' attitudes towards peer review, as well as opinions and suggestions.

3.5 Data Analysis

This study applied content analysis method for analyzing the data (Silverman, 2006; Cohen et al., 2018). For each section of the interview for each question, the researcher compiled the corresponding content based on the participants' responses and chat transcripts and coded them by using the qualitative analysis instrument Nvivo.

As shown in Table 3 and Table 4, at first, participants' responses were briefly divided into three categories: English writing learning experiences; Emotions and attitudes, and their influences toward English writing learning; the last part was concerned about the strategies that participants may use in online assessment and learning. Later, the researcher modified the preliminary coding, added three subcategories, English writing learning in middle school and undergraduate years, engagement in online writing assessment and the use of tools or platforms for testing, and opinions perspectives toward online writing assessments and the testing instruments, to the first code, English learning experience. What's more, the researcher adjusted the second code and divided it into three subcategories as well. The final coding is shown in Table 4.

Table 3. Examples of Recording and Coding

Chat records	Coding
We had English writing classes during our freshman and sophomore years. In class, the teacher explained writing methods. In Basic English course, I also learned how to choose words and make sentences. In addition, every time I take an English exam, I also have opportunity to practice writing.	English writing learning experience
In my opinion, error correction in the system of online writing assessment is good.	Attitude
I don't know if there are any issues with the structure of my article, and how to improve any aspects that are not so good.	Emotions
I may refer to the suggestions provided by the system and correct them myself	Strategy

Table 4. Coding Rearrangement

Coding	Sub-nodes
English learning experience	English writing learning in middle school and undergraduate years
	Engagement with online writing assessment
	Perspectives toward online writing assessment and testing tools or platforms
Emotions and attitudes	Emotions
	Attitudes
	The impact on English writing learning
Strategies that participants take in online assessment and writing learning	/

4. Results and Discussion

This study explored the emotions and attitudes of non-English major students towards online English writing assessment, including testing tools and platforms, as well as various tasks in the tests. At the same time, the study also examined the impact of these emotions and attitudes on students' writing learning and the strategies adopted by them in this process. Results of semi-structured interviews indicated due to differences in English proficiency and varying learning experiences in English writing, the five participants had various understandings and perspectives on online English writing assessment, testing tools and platforms. There were also subtle differences in the emotions and attitudes generated during their participation in the testing process, but there are also similarities. In addition, these two factors had impacts on them in different ways, leading them to adopt corresponding learning strategies. In chapter 4, the researcher will analyze responses of five participants based on the results of coding and try to answer research questions.

4.1 English Writing Learning Experience

The code "English writing learning experience" consists of three sub nodes, that is "English writing learning in the past" "Engagement with online writing assessment" "Perspectives toward online writing assessment and testing tools or platforms". As shown in Table 5, there was a total of 28 representative reference points under this code.

Table 5. The Number of Reference Points

Sub nodes	Number of reference points
English writing learning in the past	7
Engagement with online writing assessment	8
Perspectives toward online writing assessment and testing tools or platforms	13

In semi-structured interviews, when talking about English writing learning in the past, five participants all stated that in middle school, particularly in senior high school, as well as during undergraduate years, they had taken at least one English course, including English writing. In class, teacher taught them writing skills. Besides, completing homework after class and taking English exams such as College English Test Band 4 and 6, postgraduate entrance examination, and IELTS, they were able to use the writing skills taught by the teacher and they had great opportunity to practice writing. In addition, some of them proposed that college English writing was more challenging than that in senior high school, with a wider range of subjects and more diverse genres. Here are examples of participants' answers:

"There were English writing classes during my freshman and sophomore years. In class, the teacher explained some writing methods to us. Additionally, in basic English classes, we could also learn the methods of choosing words and sentences, as well as the skills of organizing chapters. Also, every time I took an English exam, I practiced writing (大一和大二的时候有英语写作课。在课上，老师会给我们讲述一些写作方法。而在基础英语课上，我们也能够学到遣词造句的方法和篇章组织的技巧。还有，每次参加英语考试也是在练习写作)." (Participant A)

"Since entering university, I feel that writing classes were more difficult than those in high school. Firstly, the content had significantly increased and became more extensive, not limited to a fixed format or topic. In class, the teacher asked us to write novels and poems, which involved a variety of genres and themes, making me feel very different (进入大学以来，感觉写作课比高中的更难。首先是内容明显变多了，也更广泛了，不局限于某种固定的格式或主题，比如之前上的英语读写课。在课堂上老师让我们写小说、写诗歌，写作涉及的体裁和题材还挺多的，感觉很不一样)." (Participant B)

"In the process of preparing for the English Test Band 4 and Band 6, I studied English writing. In addition, I took postgraduate entrance examination to pursue the Master's degree in Translation and Interpretation. In this case, I also needed to practice English writing (在备考英语四六级的过程中，我会进行英语写作的学习。此外，我考翻译硕士，也需要复习英语写作)." (Participant C)

Referring to the experience of engaging with online writing assessment, except for Participant E, the other four said that they had been involved in online writing assessment and used some testing tools or platforms, like *iwrite*, *Pigaiwang*, Grammarly, etc. What's more, they proposed it was easy for them to operate the tools or platforms which could provide feedback in time, telling them how to modify their writing. For example, Participant D stated: "I started using *Pigaiwang* in the second semester of my

freshman year. At that time, I went to the computer room every Thursday, accomplished writing assignment at a fixed time, and then uploaded it. (我大一下学期开始使用批改网，每周四去机房，用固定的时间完成写作任务，然后在批改网提交作业)." Participant B and C also said that they had used similar tools and platforms before, which was helpful for their writing learning.

The sub node "Perspective toward online writing assessment and testing tools or platforms" focused on what the participants thought of online writing test and the corresponding tools or platform they adopted for accomplishing tasks during the assessment. Here are the answers from them:

Table 6. Perspectives toward Online Writing Assessment and the Testing Tools or Platforms

Participant	Answer
A	I feel that the grammar correction is quite effective, but something subjective, such as whether a sentence should be written like this, may not be very accurate. 我感觉相关的写作测试工具与平台对于语法错误的纠正还是比较到位的。但是一些主观性比较强的东西，比如一句话应不应该这样写，反馈就没有那么准确了。
B	In my opinion, it's pretty good overall. 我认为，从总体上来说，还是不错的。
C	The platform provides us with preliminary feedback, which helps us improve our writing and complete the tasks. Secondly, it also gives us more resources for learning English writing. However, sometimes the feedback it provides is not very accurate, and its operating system is not intelligent enough, making it inconvenient to use. 这类平台能够给我们提供基础性的反馈，有助于我们完善写作，从而完成相应的任务。其次，它还为我们的英语写作学习提供了更多的资源。但是，有的时候它给出的反馈不是很准确，它的操作系统也不够智能，使用起来会不太方便
D	From my perspective, the main online writing testing tools and platforms are relatively simple

	and easy to operate. The application can improve teaching efficiency, promote interaction between and students. However, there are not enough examples, and some schools now rely too much on them, resulting in poor integration of online and offline teaching modes. 我认为现在主要的在线写作测试工具与平台整体做得比较简洁，易于操作。使用这些东西可以提高教学效率，促进学生之间的交流互动。但是它们给的范例不够多，而且现在有的学校过于依赖它们了，在线与线下两种教学模式结合得不好。
E	I think it has both advantages and disadvantages. Firstly, students have strong flexibility and can arrange their studies independently. Secondly, learning resources are abundant. The disadvantage is that some students are not self-discipline, making online teaching and testing a formalism, and the interaction between teachers and students is less effective. 我认为是利弊共存的。首先，学生可以自主安排学习，灵活性强。其次，线上的资源很丰富。缺点在于有部分同学不自律，使得在线教学与测试成为了一种形式主义，并且师生之间的互动较少，实效性不强

Table 6 implied that five participants held critical viewpoints. On the one hand, from the point of their views, such instruments and platforms changed current English writing teaching and learning to some extent and brought them a lot of convenience in writing learning and assessment. First, the tools and platform provided them with a number of examples, which was helpful for them to accomplish writing tasks and have better performance in the assessment. Second, they broke through time and space limitation and strengthens students' own independent learning skills and promote the interaction between their classmates and them (Wang, 2019). On the other hand, they pointed out the disadvantages. From their perspectives, the disadvantages mainly lied in effectiveness of feedback given by the system. The feedback usually focused on grammar and vocabulary spelling mistakes, while error correction in the organization of the text was not sufficient, which was one of the drawbacks of data-driven or computer-assisted language learning. Besides, in online English writing

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assessments, there was a decrease of interaction between teachers and students.

In conclusion, participants' English writing learning experience presents following features: First, considering diversity of genres and topics, and difficulty of writing tasks, it was more comprehensive and challenging than that in middle school. Second, online assessment had become an important part of English writing learning for them. However, with the development of computer-assisted learning, there were also some problems for them to deal with.

4.2 Emotions and Attitudes Generating during Online Writing Assessment

Five participants have different answers when talking about their feelings and thoughts toward online writing assessment. Here are the examples of participants' responses on this matter:

Table 7. Emotions and Attitudes Generating during Online Writing Assessment

Sub nodes	Empirical representations
Emotions	I have no strong dissatisfaction. I'm quite content with it. 我没有特别强烈的不满。我对在线写作测试与学习，还有相关的测试工具和平台，还是挺满意的。 (Participant A)
	I sometimes feel confused because I don't know how to modify the text. 我有时很困惑，因为我不知道写得不好的地方应该怎么改正。 The platform provided examples, which were good expressions that I may refer to in following tests. However, it also made my thinking rigid and I couldn't express myself in any other way, which made me feel a bit disappointed. 测试平台会给出范例，是比较好的表达方式，我在后来的测试当中就会参考这些表达。但这也使得我思维僵化，不会用别的表达，我有些失落。 (Participant B)
Attitudes	I think it's quite good. With interaction and feedback, online and offline teaching and learning, the two different modes, can be better

combined. Recently, there is a tendency of combining different teaching and learning modes trend.

(Participant D)

我觉得挺不错的。有了互动和反馈，线上线下两种不同的教学模式才能更好地结合起来。现在，不同的教学模式的结合是一个大趋势。

I think error correction and feedback in the system are great, so I am willing to continue using it in the following writing learning and assessment.

我认为纠错和反馈系统很棒，所以我很愿意在今后的写作学习和测试的过程中继续使用。

(Participant A)

From the answers presented above, it was concluded that when taking part in English writing learning and assessment online, the participants' emotions were usually biased toward positive aspects, like satisfaction. However, some of them were a bit confused, dissatisfied, and frustrated. The reasons for eliciting negative emotions in the process of online writing assessment were as follows. First, lack of specific modification made them puzzled (Yu, Geng, Liu and Zheng, 2021). According to them, the testing platform offered them examples and suggestions related to the topic. However, those modifications were only concerned about some superficial matters, such as spelling errors, grammatical mistakes, and lexical problems. In that case, although the online testing platform was beneficial, it was still possible for the students to generate negative emotions. Second, the standardization of examples made it difficult for them to accomplish independent writing tasks in further study. Fully utilizing online teaching is an inevitable trend in the education information technology. Nevertheless, due to lack of detailed explanation from the system and platform, students may be confused sometimes. In addition, timely instruction from teacher appropriate use of strategies were also significant for preventing the elicitation of negative emotions (Zhang and He, 2020). These two factors led to participants generating negative emotions when engaging with online writing assessment and using corresponding testing tools and platforms.

Regarding to the attitudes, Participant A and D both proposed that they were willing to continue to take part in online writing learning and assessment, as well as use the testing platform or system. They indicated without time and space limits, they had more chances to communicate with teacher and classmates. Besides, correction and feedback provided by the system were also useful for them to modify their writing and prepare for other tests. They held positive attitude toward online writing assessment system or platform. D pointed out the combination of different teaching modes.

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With respect to how those emotions and attitudes influence English writing learning, the participants indicated positive emotions and attitudes boost their confidence and interest in learning English writing and improve their learning methods so that they can perform well on online writing assessment and get good grades. The negative ones, on the other hand, can have a negative impact. Here are the examples:

"Positive emotions and attitudes make me feel more confident in writing English and strengthen my self-learning ability to some extent as well. I don't always follow the suggestions given by the system to modify my writing, but I do it according to my own situation. If it gives advice that makes sense, then take it (正面的情绪与态度会使我对英语写作更有信心，也在一定程度上增强了我自主学习的能力。我不会一直按照系统给出的建议来修改，而是根据自己的实际情况来做。如果它给出的建议有道理，那就采纳)." (Participant A)

"Positive emotions and attitude enhanced my interest in learning English writing and engaging with online writing assessment, hence I could quickly adapt to the new way of learning and testing. What's more, to some extent, they improved my writing test scores (正向的情绪和积极的态度增强了我学习英语写作、参与在线写作测试的兴趣，使我可以很快适应新的学习与测试方式，在一定程度上提升了我的写作测试分数)." (Participant D)

"Being enthusiastic was necessary for me. When I encountered problems in the process of learning English writing, such as not knowing whether a certain expression was appropriate, I would actively search for information and ask for help from my teacher instead of complaining (拥有一个良好的心态对我来说是很有必要和很有帮助的。当我在英语写作学习的过程中碰到问题时，比如不知道某种表达是否恰当，我会主动地检索资料，求助于老师，而不是抱怨写作任务太难完成)." (Participant E)

As shown in the above, optimistic mood influenced the participants in several ways. In the first place, as Participant D indicated, it increased his learning motivation and improve writing ability. In this case, he could have a good performance in the process of learning English writing. Second, it also cultivated self-learning capability and enhanced independent thinking skills. In the semi-structured interviews, Participant A and E stated that under the influence of positive emotions and attitudes, they were able to deal with problems in online writing assessment in their own way.

In summary, the emotions and attitudes generated by the participants while engaging with the online writing assessment and using the corresponding testing systems and tools were mainly positive, while negative ones, like confusion and doubt also existed. In addition, the participants believed that optimistic mood led to a positive change in their English writing learning and indirectly enhanced their writing learning ability.

4.3 Participants' Strategies Use

The code "Participants' strategy use" focused on strategies that the participants adopted in English writing learning. Those strategies covered several aspects, including the interaction and communication with teacher and writing learning and practice.

Table 8. Examples of Learning Strategy Use

Participant	Answer
A	I would refer to the suggestions provided by the system concerning the cohesion and coherence, but which ones to use would be based on my own situation. 我会参考系统给出来的关于文章衔接与连贯的建议，但采用哪些会根据自己的实际情况来
C	Generally, I modify my article independently. Later, I would like to communicate with classmates and carry out peer review, which is a good chance for us to learn from each other. 一般来说，我会先自己修改文章，改完以后和同学同伴互评，交换看法，学习他人的长处。
D	In general, the system points out grammatical errors, and I can correct them on my own. However, when encountering complex problems, I may seek help from the teacher, have a talk with the teacher face to face, and adopt the feedback and suggestions. I believe that face-to-face conversations are more efficient than online ones, because when communicating with teachers online, I can delve deeper and better grasp the content and progress of the conversation. 系统一般会指出简单的语法错误，我是可以自行改正的。但是，当碰到复杂的问题时，我会求助老师，和老师进行线下面对面的交谈，并听取老师给出的反馈和建议。我认为，有时候线下面对面的交谈比线上的效率更高，因为在线上与老师交流的时候，可以聊得更深入，而且可以更好地把握交流的内容和进度。

Table 8 presented what strategies did participants use in English writing learning and assessment, and how they used the strategies. From the table, it was found that the strategies they used were characterized by self-regulation. For example, in the interview, Participant A and C said in online

writing assessment, rather than consistently referred to advice that the testing system provided, they preferred to adjust it according to their level and learning needs, then modified their writing by themselves. In addition to self-regulation, the interaction and communication with teacher and classmates were also important. According to Participant D, he would like to ask his teacher for help when encountering problems and difficulties in online English writing learning and assessment. In his opinion, face-to-face communication was more effective.

It was found that in online English writing learning and assessment, those participants prefer to use self-regulation strategies. In the study, their self-regulation strategies could be divided into following parts: modifying writing, monitoring learning process, evaluation, and interaction with classmates and the teacher. Self-regulation enhanced their initiative, increased their learning motivation, and finally promoted their self-efficacy in English writing learning (Su, Liang, Zheng and Tsai, 2023). What's more, self-regulation influenced their performance in accomplishing the tasks of online English writing and assessment. It could suggest their behavior, as well as affections generating in that process (Su, Li, Liang and Tsai, 2019).

5. Conclusion

In this study, by carrying out five semi-structured interviews and analyzing the data with Nvivo, the researcher tried to explore what kind of emotions and attitudes non-English majors may generate when they participated in online writing assessment, as well as used the instruments, platforms, or systems for assessment. Besides, the researcher also focused on how these two factors have impact on their English writing learning, and the strategies they adopted. Reviewing the previous studies concerning emotions, attitudes and online English teaching, learning and assessment, the current research reveals the complexities of them from multiple perspectives. In recent years, with the development of information science and technology, computer-assisted language learning and teaching emerge in language education practice and became a hot topic in the research. What's more, reform of English course and assessment in higher education is carrying out. In addition, due to the pandemic, online teaching platform and system is widely used gradually.

Findings suggest that non-English majors' emotions and attitudes are complex, the formation and change are affected and restricted by multiple aspects. Referring to English writing learning experience, interdisciplinary knowledge framework and immediate and advanced level, when participating online writing assessment, non-English major are more likely to have positive emotions than that of forming negative ones. Such positive emotions are helpful for them to solve problems encountered in English writing learning. The attitudes are also influenced by subjective and objective factors. In this study, formation of positive attitudes towards online writing assessment mainly depends on non-English majors' perception, the interface and operation of online writing assessment system. Additionally, it's necessary to use appropriate strategies in the assessment and maximize benefits from the strategies.

However, there are still some limitations. First, data analysis should not be limited to quantitative.

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Mix-method research is beneficial for us to have better understanding of non-English majors' emotions, attitudes and strategies used in online writing assessment, as well as internal mechanism. Second, this study mainly focuses on micro factors. Third, there are few discussions on teacher. Teacher is essential in online writing assessment.

In the following studies, both qualitative and quantitative analysis need to be used in language teaching and learning research and conduct triangulation to ensure the effectiveness of the data. Additionally, there should be more discussion on the relationship of teacher and students for understanding the topic from different aspects.

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Notes

Guide for semi-structured interview

1. Can you briefly share your experience of English writing learning since you entered university?

2. Have you ever used or are you using online evaluation systems and platforms for English writing such as iwrite, Grammarly or MOOC?

3. What kind of problems do you usually encounter when using the online teaching and assessment platform for English writing?

4. What do you think of this teaching mode and the assessment platform?

5. How do think about on the use of online writing assessment platform and system? Do you find it difficult to use?

6. What do you think of the feedback and suggestions given by teachers, classmates and the system?

7. What aspects did the feedback involve?

8. How do you revise your writing? Whether to refer to the feedback and suggestions?

9. Is it possible to assume that the positive emotions, attitudes you hold, as well as feedback and suggestions you receive have contributed to the learning of English writing and to the improvement of English proficiency to some extent?

Chinese version

1. 请问能否简要地分享一下你进入大学以来的英语写作学习经历?

2. 请问你是否使用过或正在使用 iwrite, Grammarly, 中国大学 MOOC 一类的英语写作在线测评系统和平台?

3. 在使用英语写作在线教学与测评系统及平台的时候，你通常会碰到什么问题?

4. 你是如何看待该种写作教学模式和相应的测评平台呢？

5. 请问你在使用该平台与系统的过程中有何感受，是否觉得使用起来存在一定的困难呢？

6. 请问你如何看待老师、同学以及系统给出来的反馈和建议？

7. 反馈涉及到英语写作的哪些方面？

8. 你如何修改自己的作文？是否会参考他人的意见和建议？

9. 是否可以认为积极正向的情感态度，反馈与建议推动了你的英语写作学习，并有助于你提升自身的英语水平？