

A Case Study of Chinese University Students' Negative Emotions in GAI-Assisted L2 Writing

Hao Guo

*School of Foreign Languages, East China Jiaotong University, Nanchang, China
13593021267@163.com*

Abstract. Previous research, predominantly quantitative, has yielded contradictory findings regarding the impact of generative artificial intelligence (GAI) tools on negative emotions experienced by learners in second language (L2) writing. However, little qualitative research has been conducted to further explore these emotions in GAI-assisted contexts compared with non-GAI-assisted ones. This qualitative case study investigated three Chinese undergraduates' negative emotions with the assistance of GAI tools (e.g., ChatGPT, DeepSeek) in L2 writing. Using thematic analysis of in-depth semi-structured interviews, the study found a complex, nuanced picture. Though GAI assistance largely alleviated participants' anxiety, uncertainty, and frustration, these negative emotions persisted, albeit for different underlying reasons. For example, anxiety about limited L2 proficiency was eased by GAI-generated feedback, yet participants became anxious about the reliability of such feedback. Moreover, new negative emotions, including distrust, anger, and shame, emerged due to the involvement of GAI tools. Pedagogical implications are discussed in light of these findings.

Keywords: generative AI (GAI), negative emotions, second language writing

1. Introduction

The rise of generative artificial intelligence (GAI) has transformed the landscape of second language (L2) writing [1,2]. Tools such as ChatGPT and DeepSeek are increasingly integrated into L2 writing practice to support learners with personalized, real-time feedback, ranging from vocabulary suggestion and grammar correction to idea generation [3,4]. In recent years, a growing body of research has examined learners' emotional experiences in GAI-assisted L2 writing. Given that negative emotions (e.g., anxiety, uncertainty, and frustration) have long been recognized as a major barrier to successful L2 writing, research in this area is both timely and important [5]. However, extant findings on GAI's emotional impact remain contradictory. While some studies report reduced anxiety and frustration [6], others highlight new sources of emotional strain, such as doubts about authorship and guilt over GAI use [7]. Moreover, much of the current research relies on survey-based or quasi-experimental designs, which capture general trends but often overlook the nuanced, situated interpretations of emotional experiences. To address these gaps, the present study adopts a qualitative case study approach to explore how students perceive their negative emotions in GAI-assisted L2 writing, compared with non-GAI-assisted contexts.

2. Literature review

Existing studies have revealed both positive and negative impacts of GAI tools on learners' emotional experiences in L2 writing. On the positive side, the multifunctionality of GAI tools has been reported to ease learners' difficulties during the writing process, thus reducing anxiety. For example [6], found that GAI assistance "enhances students' motivation, reduces anxiety and stress" (p. 1) and fosters a supportive learning environment. Similarly [8], observed that GAI-supported revision helped mitigate learners' negative emotions, underscoring its potential to facilitate emotional regulation in L2 writing. Seen in this light, GAI may serve not only as a linguistic aid but also as an emotional buffer for struggling L2 writers.

On the other hand, emerging evidence has cautioned against an overly optimistic view of GAI's emotional benefits. The rapid rise of ChatGPT in higher education has sparked what [9] termed a "profound crisis of trust," as both students and teachers struggle with its use. Learners in [9]'s study reported feeling afraid, worried, angry, and uncomfortable when relying on GAI tools for writing tasks. Likewise, a survey of university learners showed concerns about the accuracy, privacy, ethics of GAI use, as well as its impact on personal development [10]. More recent work in educational ethics has introduced the notion of "AI guilt," referring to the moral discomfort that students experience when delegating intellectual labor to AI [7]. Such guilt is often tied to anxiety over academic integrity, with learners worrying that their authorship may be questioned or their genuine efforts overshadowed by machine assistance [7].

While much of the literature portrays either positive or negative emotional responses to GAI-assisted writing, relatively little research has uncovered mixed patterns. As a review rather than an empirical study [11], synthesized a broad range of research and noted that while some learners report reduced anxiety when using GAI-generated feedback, others experience elevated stress, often triggered by a perceived loss of writing ownership or overly formal, impersonal suggestions. His review highlights that GAI may not merely reduce or provoke negative emotions in a linear fashion; rather, it may shape emotional responses in nuanced ways.

The above studies have advanced our understanding of how GAI shapes learners' experiences of negative emotions in L2 writing, yet several gaps remain. Firstly, existing findings are inconsistent: some research found that GAI can help ease negative emotions [6], whereas others indicated it may introduce new types of negative emotions [7]. Clarifying these divergent findings is essential, as a more precise understanding of L2 learners' emotional experiences enables educators to design targeted pedagogical interventions that address specific affective barriers and optimize teaching effectiveness.

Second, there is a methodological insufficiency in how these emotional experiences are studied. The majority of existing research relied on quantitative methods, such as Likert-scale questionnaires and pre-post testing design, with limited qualitative inquiry into how learners personally interpret their emotional experiences. While quantitative methods are useful for identifying general patterns or group-level emotional states, they offer limited insight into the nuanced, situated interpretations that learners assign to their emotional experiences. Without qualitative approaches such as conducting in-depth interviews or case-based analysis, it remains unclear how the presence of GAI shifts learners' emotional responses during L2 writing.

To address these gaps, the present study adopts a qualitative case study design focusing on three Chinese undergraduate students who have experienced both traditional and GAI-assisted L2 writing. Specifically, the study investigates whether and how students' negative emotions change in the presence of GAI assistance. It is guided by the following overarching research question: Compared

with non-GAI contexts, do the types of negative emotions experienced by students change in GAI-assisted L2 writing? If so, what specific changes in negative emotions can be observed?

3. Methodology

This section first describes the research context and case study participants. It then details how data were collected through in-depth semi-structured interviews and analyzed using thematic analysis.

3.1. Research context and participants

This study was conducted at a research-intensive university in Southeast China. In this university, instructors hold mixed attitudes toward the use of GAI tools. While some explicitly encourage their responsible and ethically sound integration into classroom activities and assignments, others prohibit their use outright.

Three undergraduates (Lily, Ella, and Liz, pseudonyms) volunteered to participate in this case study and signed consent forms. Their enrollment followed the principle of purposive sampling [12]. They were all native Chinese speakers learning English as their L2, but their English proficiency differed. At the time of the study, Lily was a junior majoring in English who had passed TEM-4 (Test for English Major in China, equivalent to C1 level). Ella, a junior in Transportation Engineering, had achieved a B2 level, as indicated by her CET-6 score of 508 (College English Test in China). Liz was also a third-year Transportation Engineering major with a CET-6 score of 453, corresponding to B1 level. All participants had substantial experience using GAI tools for L2 (English) writing. They reported regular use of both domestic (e.g., DeepSeek) and international (e.g., ChatGPT) products for purposes such as idea generation, grammatical correction, and information search.

3.2. Data collection

Data were collected via semi-structured interviews. Guided by a set of predefined questions, semi-structured interviews allowed L2 writing researchers to probe participants' responses in depth, facilitating a rich understanding of their thoughts, emotions, and experiences [13].

The interview protocol consisted of three parts. First, participants were invited to share their backgrounds, including English language proficiency, daily use of GAI tools, and the use of GAI tools for English writing. The second part was designed to elicit the negative emotions they experienced in L2 writing prior to the advent of GAI tools. In the third part, participants were prompted to answer what negative emotions they experienced in GAI-assisted L2 writing and why. Particular attention was allocated to the emotions that differed from those in non-GAI contexts. For any negative emotions mentioned in the second part but absent in the third, the author asked participants to explain whether and why these emotions disappeared or diminished.

Each participant participated in a one-on-one interview at a private on-campus location (e.g., a quiet café or study room). Interviews were conducted in Chinese (the shared language between the author and participants) and lasted approximately 60-90 minutes each. All interviews were audio-recorded with consent and transcribed verbatim. Any transcript excerpts quoted in this paper were translated into English by the author and verified by a professional Chinese-English translator.

3.3. Data analysis

Interview transcripts were analyzed using thematic analysis [14]. This method was chosen because it enables the systematic identification and interpretation of patterns in participants' narratives, making it well-suited to exploring emotional experiences in depth.

The analysis proceeded as follows. First, transcripts were read repeatedly to ensure familiarity with the data. Initial codes were generated deductively, focusing on participants' descriptions of their emotional experiences in both non-GAI-assisted and GAI-assisted L2 writing contexts. To label negative emotions, literature on academic emotions was frequently consulted [15,16]. These initial codes were then clustered into preliminary themes that captured recurrent patterns in emotional changes across contexts, with particular attention to shifts in type, intensity, or attribution. Potential themes were then iteratively reviewed and refined, resulting in three overarching themes: (1) Fewer negative emotions, (2) Same negative emotions but with different triggers, and (3) More negative emotions in GAI-assisted L2 writing.

To enhance the credibility of the analysis, a second coder independently analyzed a subset of the transcripts, and discrepancies in coding were resolved through discussion. Member checking [17] was also conducted to minimize misinterpretation.

4. Results

In this section, changes in participants' negative emotions in the presence of GAI assistance are reported based on the thematic analysis of semi-structured interviews.

4.1. Fewer negative emotions

Participants reported that GAI assistance alleviated three negative emotions traditionally associated with L2 writing: anxiety, uncertainty, and frustration. This alleviation was largely attributed to GAI functions such as real-time grammar correction, idea scaffolding, and rapid response. These functions acted as emotional buffers, allowing participants to approach L2 writing tasks with greater composure and confidence.

Specifically, anxiety was reduced primarily through GAI's immediate grammar correction and vocabulary suggestions. As Lily noted, "AI can correct my grammar errors and polish my vocabulary, which used to make me anxious." Such feedback directly addressed learners' concerns over the linguistic accuracy of their writing. Uncertainty at the outset of writing was also mitigated by GAI-generated outlines and content scaffolds. Ella explained, "Having a suggested outline instantly made me feel guided rather than lost." This shows how GAI facilitated a smoother writing initiation process. Furthermore, frustration caused by time constraints was eased by the rapid text generation function of GAI. Liz remarked that "GAI can quickly generate an essay, saving time and improving my writing efficiency." Her remark illustrates how GAI helped relieve frustration stemming from time pressure.

4.2. Same negative emotions but with different triggers

Although GAI assistance lessened anxiety, uncertainty, and frustration, these negative emotions persisted, albeit triggered by different factors. These emotions now stemmed from concerns about GAI's reliability, academic appropriateness, and social perceptions rather than from limited language proficiency or tight deadlines.

For instance, anxiety shifted to doubts about whether GAI's suggestions met academic standards. Ella admitted feeling anxious because she "was not sure if GAI's suggestions were academically acceptable." Some anxiety arose from peers' or instructors' remarks about GAI use, especially when such comments implied excessive dependence or potential academic misconduct. As Liz recounted, "When the teacher mentioned that some students might rely too much on AI, I started to feel anxious about whether my work would be questioned." Uncertainty was now triggered when participants compared their own writing with GAI-generated text. As Lily reflected, "AI's polished sentences made me question my own skills." This indicates that in GAI-assisted contexts, uncertainty shifted from difficulties in content generation to doubts about personal writing competence. Frustration also remained, especially when GAI misunderstood prompts or produced irrelevant output. As Liz described, she felt "stalled once again" when GAI failed to interpret her intended meaning. In such cases, mismatches between user intent and AI output replaced earlier frustrations related to time constraints.

4.3. More negative emotions

The integration of GAI into L2 writing also introduced negative emotions—namely distrust, anger, and shame—that were rarely reported in non-GAI-assisted contexts. These emotions were closely tied to the technology itself, including perceived unreliability, operational disruptions, and heightened moral scrutiny.

In this study, distrust arose when participants questioned the factual accuracy of GAI-generated outputs. For example, Liz did not "completely trust GAI's output, even though it looked convincing." Anger was triggered by technical glitches or repetitive, irrelevant suggestions. Ella shared that managing multiple prompts and handling errors in GAI responses left her "feeling angry." Such operational shortcomings imposed additional emotional strain. Shame was often linked to academic integrity concerns. Lily described feeling "a bit ashamed" when her teacher questioned the originality of her work. Liz also experienced shame when GAI-produced language appeared "too perfect," which she felt highlighted her own linguistic shortcomings. Overall, while GAI assistance reduced some traditional negative emotions in L2 writing, it simultaneously introduced new technology-specific emotional pressures, thereby reshaping the affective landscape of L2 writing.

5. Discussion

The current study contributes to the ongoing discussion on GAI-assisted L2 writing by unveiling the mixed effects of GAI tools on learners' negative emotions. The findings of this study reveal a more comprehensive and complex picture than previously documented: while GAI assistance effectively reduces several negative emotions traditionally associated with L2 writing, it simultaneously reshapes lingering negative emotions and introduces new affective burdens. In other words, GAI tools not only alleviate writing anxiety, uncertainty, and frustration but also shift the underpinning triggers of these persisting negative emotions. Meanwhile, GAI assistance gives rise to new negative emotions in L2 writing, such as distrust, anger, and shame, all directly linked to the technology itself.

Participants in this study reported that, compared to traditional L2 writing without GAI tools, some negative emotions were lessened, for example, anxiety about language accuracy and idea generation during English writing tasks. This finding supports the positive role of GAI in alleviating negative emotions in L2 writing, as argued by previous research [6]. Moreover, the observed

reduction in frustration due to GAI's rapid response under time pressure aligns with previous research highlighting efficiency gains from GAI assistance that lower task-related stress [11].

In addition to reduced negative emotions, participants also reported new negative emotions (i.e., distrust, anger, and shame) that were not present in traditional, non-GAI-assisted writing. This finding partially aligns with [9]'s exploration of writing center tutors who expressed emotional tension and distrust when integrating GAI tools. In the present study, learners' distrust manifested as doubts about the factual accuracy of GAI-generated content. Participants also reported shame related to academic integrity concerns, echoing [11]'s argument that ethical concerns accompany GAI use. Extending previous research on technology-induced emotions, this study further found that learners' anger was triggered by technical glitches and repetitive or irrelevant GAI-generated content.

More importantly, this study found that while negative emotions such as anxiety, uncertainty, and frustration could be relieved to some extent by GAI, these emotions nonetheless persisted in GAI-assisted contexts, with their antecedents shifting from personal writing performance to GAI-specific issues. Learners no longer worried primarily about their own language proficiency or difficulties in idea generation; instead, new sources of anxiety arose around the reliability and accuracy of GAI-generated content. Regarding uncertainty that was once linked to writing block or language competence gaps, it was transformed into skepticism about GAI. Similarly, the trigger of frustration shifted from struggles with language to technical difficulties or unsatisfactory GAI outputs. This emotional complexity suggests that GAI tools do not simply eliminate negative feelings in L2 writing but rather restructure them, requiring learners to navigate a novel emotional landscape.

6. Conclusion

This case study examined three Chinese undergraduates' negative emotions in GAI-assisted L2 writing, specifically exploring how their emotional experiences changed compared with non-GAI-assisted writing contexts. Thematic analysis of in-depth semi-structured interviews revealed that GAI support substantially alleviated anxiety, uncertainty, and frustration by providing immediate feedback and structural scaffolding. Nonetheless, these negative emotions (i.e., anxiety, uncertainty, and frustration) persisted, albeit driven by factors, for example, concerns over GAI reliability rather than personal language competence or deadlines. New negative emotions (i.e., distrust, anger, and shame) also emerged due to technology-specific pressures. Overall, the findings unveil a complex and comprehensive picture of learner emotion in GAI-assisted L2 writing.

This study holds significant implications for L2 writing instruction. To begin with, it is important for teachers to acknowledge that while GAI tools can effectively reduce traditional writing anxieties by offering timely linguistic feedback and structural support, learners may still experience emotional challenges related to the GAI tools themselves, for example, doubts about GAI reliability. One of the most effective pedagogical interventions is to foster critical GAI literacy, guiding students to evaluate GAI-generated content critically and use these tools as supplements rather than substitutes. Moreover, the emergence of new negative emotions such as distrust, anger, and shame calls for attention to the ethical dimensions of GAI-assisted writing. Teachers should create open dialogues around academic integrity and authorship to help reduce students' negative emotions in GAI-assisted writing.

Though this study yields valuable findings and implications, its limitations must be acknowledged. While this study complemented previous quantitative-dominated research by conducting in-depth semi-structured interviews, these interviews have inherent defects. For example, interviewees might distort their memory by omitting or adding details of emotional experiences. It would be beneficial for future studies to collect as much data as possible for data

triangulation [18]. Another limitation lies in its limited sample size. This exploratory case study involved only three participants with different English proficiency levels and majors at a Chinese university. Future studies may wish to enroll more participants with diverse backgrounds to validate the findings of this study, so as to unveil a more comprehensive picture of learners' emotional experiences in GAI-assisted L2 writing.

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