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AI-driven sentiment analysis for mitigating foreign language anxiety (FLA) in EAP: A proof-of-concept study

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ABSTRACT

Foreign Language Anxiety (FLA) is a persistent affective barrier in English for Academic Purposes (EAP), yet little research has examined how artificial intelligence (AI) might support learners emotionally. This article presents a proof-of-concept study investigating the feasibility of using AI-driven sentiment analysis to identify and mitigate FLA. A small Padlet-based corpus of student reflections (n = 41) was analysed using GPT-4-based sentiment classification, followed by an AI-mediated reframing activity completed by a volunteer sub-sample of learners (n = 14). Rather than making generalisable empirical claims, the study explores the potential and limitations of large language models as tools for affective scaffolding. Results indicate that students frequently express mixed emotions, combining anxiety with hope and motivation, and that AI-supported reframing may promote short-term reassurance and increased confidence. The paper discusses methodological and ethical considerations and outlines how affect-aware AI tools could be meaningfully integrated into EAP pedagogy.

1. Introduction

Foreign Language Anxiety (FLA) is widely recognised as one of the most pervasive affective barriers in second language learning, with documented impacts on learners' confidence, willingness to communicate, academic engagement and performance (Horwitz et al., 1986; MacIntyre, 1999; Scovel, 2000; Horwitz, 2013; Dewaele & MacIntyre, 2014; MacIntyre, 2017; Şimşek and Dörnyei, 2017). In English for Academic Purposes (EAP) contexts, where students must perform linguistically and cognitively demanding tasks under evaluative pressure, the emotional dimension of learning becomes especially salient. Research in Second Language Acquisition (SLA) increasingly suggests that language development is not merely cognitive, but profoundly affective, socially situated and identity-relevant (Stevick, 1980; Bao and Liu, 2021; Lightbown and Spada, 2024). Feelings of worry, fear of negative evaluation and self-consciousness can restrict students' ability to participate, experiment and take the linguistic risks necessary for growth (Dooey, 2010; Norton, 2013).

At the same time, recent advances in Artificial Intelligence (AI) and affective computing are reshaping conversations about how digital tools might support learners not only cognitively, but also emotionally. Research in educational technology has begun to explore the potential of affect-aware systems, sentiment analysis and automated feedback to scaffold motivation, emotional regulation and self-reflection, while also calling for theory-driven frameworks to guide their responsible integration into educational practice (Picard, 1997; Calvo and D'Mello, 2011; Ouyang and Jiao, 2021; Kasneci et al., 2023). However, in applied linguistics, and EAP

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specifically, such tools remain underexplored. The potential of emerging large language models (LLMs), such as ChatGPT, to identify anxiety-related discourse patterns or provide empathetic, non-judgmental reframing, has been theorised but not yet systematically investigated.

The present article responds to this gap, investigating whether AI-driven sentiment analysis may serve as a form of affective digital scaffolding to support EAP learners experiencing FLA. Drawing on a Padlet-based corpus of student reflections and a follow-up activity in which learners engaged with ChatGPT to reframe negative thoughts, the study examines how LLMs can detect emotional cues and offer supportive, growth-oriented responses.

2. Positioning the study

Rather than presenting itself as a fully-fledged empirical study, this article is intentionally framed as a proof-of-concept (PoC) investigation, thereby seeking to determine the feasibility, pedagogical potential and conceptual value of an innovative approach, without claiming generalisability or comprehensive empirical validation. Given the rapidly evolving nature of LLMs, and the exploratory aims of the project, this framing is essential. The goal is not to measure effectiveness at scale, but to examine whether such AI tools can meaningfully detect affective patterns in learner-generated texts, support learners in reframing FLA-related thoughts and complement the teacher's role in creating emotionally safe and responsive EAP environments. Positioning the work in this way converges with emerging scholarship calling for early-stage, exploratory research to map the affordances and risks of AI integration in language education before large-scale adoption occurs (Zawacki-Richter et al., 2019; Holmes et al., 2022; Zhai, 2022).

In this article, "proof-of-concept" is used in a strict sense: the study does not test effectiveness or establish generalisable prevalence estimates of FLA. Instead, it (a) evaluates feasibility (whether a structured LLM workflow can produce interpretable affective annotations on authentic learner reflections under human oversight), and (b) generates design-oriented insights (what pedagogical uses and safeguards appear plausible, and what risks/artefacts require attention before any scale-up). Accordingly, interpretive claims in the Results and Discussion are bounded to this feasibility-and-design scope and should be read as hypothesis-generating rather than confirmatory.

3. Affective and pedagogical context

Language learning is uniquely emotional because language itself is tied to self-expression and identity. As Guiora (1983) famously argued, linguistic limitations can restrict one's sense of self, leading to insecurity and vulnerability. EAP contexts heighten this vulnerability: learners engage with public speaking, academic writing, oral assessments and peer-facing performance that can trigger anxiety, self-doubt and avoidance behaviours. Such reactions hinder the active engagement that communicative tasks require (Scrivener, 2011). Understanding and addressing these emotional dynamics is therefore crucial for effective pedagogy. Unlike general language instruction, EAP is tightly coupled with institutional evaluation, disciplinary norms and high-stakes academic gatekeeping, making emotional regulation not ancillary but central to learner success.

Students often articulate ambivalent emotional states, simultaneously expressing fear, hope, motivation, insecurity and trust. Attending to this emotional complexity is central to recent strands of Emotion Studies in SLA (Gkonou, Daubney & Dewaele, 2017). Yet teachers often lack tools to systematically identify and respond to emotional cues expressed in writing or classroom interactions. AI-driven sentiment analysis may offer one such tool, enabling teachers to detect patterns at scale, support learners' reflective processes and create opportunities for early intervention.

4. Affective computing, AI in education and emerging opportunities for EAP

The integration of AI into language education has traditionally centred on cognitive support, automated feedback, tutoring systems or adaptive learning platforms. However, recent developments in affective computing (Picard, 1997; Calvo & D'Mello, 2011) and emotion-aware educational systems (D'Mello & Graesser, 2015) have expanded the scope of AI toward detecting and responding to learners' emotional states. Affective computing conceptualises emotions as computationally tractable signals that can be inferred from linguistic, behavioural or physiological cues. In educational contexts, these insights have informed the development of systems capable of identifying frustration, confusion, motivation or anxiety, with the aim of providing timely, supportive interventions (Graesser et al., 2014; Pekrun, 2021).

While affect-aware technologies have been explored in broader educational research (Luckin, 2017; Holmes et al., 2022), their application to FLA and EAP remains limited. As mentioned before, EAP classrooms are characterised by high cognitive load, performance pressure and identity exposure, conditions known to heighten anxiety (Norton, 2013; Gkonou et al., 2017). Yet teachers often lack systematic tools for detecting affective needs, particularly when emotions are expressed indirectly, sporadically, or through written reflections. In this context, AI-driven linguistic analyses, such as sentiment analysis, emotion keyword extraction, and LLM-mediated reframing, offer new possibilities for affective scaffolding.

LLMs, including ChatGPT, are capable of identifying affective markers embedded in text, lexical intensifiers, evaluative stance, hedging, fear expressions or self-deprecating constructions, making them promising tools for detecting anxiety-related discourse in learner-generated data (Kasneci et al., 2023). More importantly, LLMs can generate non-judgmental, empathetic and personalised feedback, which may help learners reframe negative thoughts, externalise worries and foster self-compassion, elements considered central to affect-regulated learning (Neff, 2003; MacIntyre & Gregersen, 2012).

Despite these opportunities, empirical research on affect-aware AI in language education is still in its formative stages. Concerns

remain regarding reliability, bias, explainability and ethical governance (Zawacki-Richter et al., 2019). This strengthens the rationale for adopting a proof-of-concept design: before scaling such tools, educators must understand their feasibility, pedagogical value and limitations.

5. Aims and research questions (RQs)

In this context, the present PoC study explores two guiding questions:

1. What affective themes emerge in students' reflections on EAP challenges, and can an LLM-based workflow annotate them transparently?
2. What immediate effects do students report from an AI-mediated reframing activity, and what design implications follow?

Through these questions, the article seeks to illuminate both the affective landscape of EAP learners and the potential role of AI-mediated emotional support.

Overall, this proof-of-concept study aims to contribute to emerging work at the intersection of SLA, affective computing and EAP pedagogy. By examining the feasibility and pedagogical implications of integrating AI-driven sentiment analysis into classroom practice, the study lays foundational groundwork for future empirical research into AI-supported affective scaffolding for language learners.

6. Methods

6.1. Padlet-based corpus collection and GPT sentiment analysis

Data were collected during a preliminary Needs Analysis at the beginning of an undergraduate English course in Modern Languages at the University of Naples Federico II (Italy). 47 students were present, 41 of whom contributed posts; the remaining students reported technical issues preventing participation. All participants were studying English alongside another foreign language (French, German or Spanish).

The Needs Analysis was administered through Padlet, a collaborative digital platform functioning as an anonymous virtual noticeboard. A QR code directing students to a digital "wall" was displayed in class, and students were invited to submit reflections in response to the following open-ended prompt:

What do you expect from this course? How do you feel about it? What do you think a teacher could do to help you on this journey? Feel free to write whatever crosses your mind. All your posts will be anonymous, and nobody will ever know who wrote what.

All posts were exported, anonymised and compiled into a structured corpus using Python and pandas, which enabled systematic cleaning, formatting and assignment of unique identifiers (i.e., "Post 1"). Posts were saved as.txt files to ensure traceability and reproducibility across analysis stages.

Sentiment analysis was conducted using GPT-4 via ChatGPT, prompted to return (i) a sentiment label, Positive, Mixed, Neutral, or Negative, and (ii) a short justification based on linguistic cues. Given the exploratory scope of the study, this approach aligns with current research employing LLMs for affective computing in educational settings (Kasneci et al., 2023). To enhance consistency, posts were analysed in batches of ten using a standardised prompt template that defined sentiment categories and analytical criteria.[1]

GPT-based annotation was selected for three reasons. First, the dataset consists of short, highly contextualised reflections where affect is often conveyed indirectly through stance, intensifiers, hedging, contrastive markers (i.e., but/anyway), and co-occurring emotions; these patterns are frequently missed by lexicon-based sentiment methods that privilege word polarity over discourse context. Second, unlike many "black box" classifiers, an LLM can be prompted to return a label plus an explicit textual rationale, which is critical for pedagogical interpretability in exploratory classroom-oriented research. Third, the aim at this stage is not to benchmark performance against gold-standard human coding, but to assess whether a controlled prompting workflow can yield stable, inspectable outputs suitable for design exploration. Human coding remains the appropriate next step for confirmatory work and for validation against established measures.

Because LLM outputs are probabilistic, several reliability procedures were implemented. First, prompt structure and wording remained fixed across all batches. Second, all model-generated labels and explanations were reviewed manually, with special attention to ambiguity, stance shifts and subtle affective markers. Where outputs appeared inconsistent or insufficiently justified, the prompt was re-issued and stability across runs was verified. Third, a secondary layer of analysis was performed through keyword-based emotion extraction (i.e., *hope, fear,* support*, confidence*), conducted in Python and cross-validated with GPT to confirm contextual accuracy. A multi-column dataset listing each post, its sentiment label and explanation was then produced to support transparency and subsequent thematic interpretation.

To provide an indicator of output stability, the full corpus was re-analysed using the same fixed prompt on a second run, separated

[1] All analyses were conducted using GPT-4 via the ChatGPT interface (OpenAI). Model parameters were kept at default settings to maximise consistency across runs (temperature = 0; max tokens sufficient to return label and justification). Analyses were conducted between April and May 2025. While exact parameter control is limited in consumer-facing interfaces, prompt standardisation and repeated-run stability checks were used to mitigate variability.

in time, and sentiment labels were compared across runs. Agreement was calculated as percentage agreement. Disagreements were adjudicated through a documented human review procedure.

Ethical considerations were integral to the Padlet data collection. All posts were anonymous by design; no identifying information was collected and students were informed that participation would not affect their course performance. Students were also reminded that digital tools used in the course serve pedagogical, not psychological, purposes.

6.2. AI-supported reframing activity

To further examine the potential of AI as an affective scaffold, a small-scale AI-mediated reframing activity was conducted with a subset of 14 volunteers from the original cohort. This activity targeted the main domains associated with FLA identified in the sentiment analysis, public speaking, fear of mistakes, fear of being judged, exam-related stress and self-perceived linguistic inadequacy.

Students were invited to formulate a personal negative thought related to their English learning experience and to submit it to ChatGPT along with a standardised reframing prompt:

I'd like you to help me reframe this negative thought into a more optimistic and growth-oriented mindset. Can you support me emotionally and help me see this differently?

The intention was to explore whether large language models could provide empathetic, non-judgmental and growth-oriented responses capable of alleviating FLA or fostering more adaptive emotional perspectives. The teacher monitored interactions to ensure appropriateness and emotional safety, emphasising that learners could withdraw from the activity at any time.

Following the ChatGPT interaction, students completed an anonymous Google Forms questionnaire designed to elicit emotional reactions and perceived changes in mindset. The form included the open-ended question: “How did you feel after receiving the support? What changed in your perspective? Do you feel more motivated or reassured now?” Responses were analysed qualitatively using inductive thematic analysis to identify recurrent themes related to motivation, reassurance, validation, emotional release or persistent concerns.

Ethical safeguards were implemented throughout this activity. Participation was voluntary, no grades were affected and students were advised not to disclose more personal information than they felt comfortable sharing. The teacher reiterated that ChatGPT is not a psychological counselling tool but a digital support mechanism intended to complement human guidance. All reflections were stored securely and anonymised for analysis.

7. Results

7.1. Sentiment distribution

A total of 41 anonymised student responses were analysed using a GPT-based sentiment classification process. Each post was assessed for its overall emotional tone and categorised as either *Positive*, *Mixed*, *Neutral* or *Negative*. The results (see Table 1) show that most student reflections expressed a combination of optimism and apprehension, with a notable prevalence of mixed emotional states. No post was classified as explicitly negative.

7.2. Emotion frequency overview

To further explore the affective dimension of the corpus, a keyword-based emotion analysis was conducted on the GPT-generated sentiment explanations. Twenty distinct emotional categories emerged, with *hope*, *fear* and support among the most frequently cited (see Table 2).

7.3. Emotion-Context Mapping

To better understand how emotions were situated in the learners’ narratives, each emotion was linked to the specific learning context in which it was expressed. Table 3 summarises this mapping:

7.4. AI-supported reframing task

Following the sentiment reframing task, a smaller number of students who participated in the preliminary Needs Analysis were invited to reflect on how they felt after receiving emotional support and growth-oriented feedback from ChatGPT. A total of 14 reflections were submitted via Google Forms. These responses were analysed qualitatively to assess emotional shifts and to identify recurring themes in students’ perceptions of the AI interaction. Given the small, self-selected sample, findings from the reframing task are necessarily limited in scope and are presented here as illustrative rather than representative. The findings are therefore not intended to be generalised, but rather to offer rich, illustrative insights into learner experiences and guide future large-scale

Table 1
Sentiment distribution in student narratives.

Sentiment	Frequency
Mixed	20
Positive	18
Neutral	3
Negative	0
Total	41

Table 2
Frequency of emotion keywords in sentiment explanations.

Emotion	Frequency
Hope	15
Fear	12
Support	10
Trust	8
Anxiety	7
Confident/Confidence	7/7
Motivated	6
Appreciation	5
Shy	4
Afraid	3
Insecure	2
Optimism	2
Engagement	2
Excited	2
Doubt	2
Worry	1
Frustration	1
Enthusiasm	1
Determined	1

Table 3
Emotion–context associations in EAP learning reflections.

Emotion	Context
Hope	Desire to improve, pass exams, gain fluency
Fear	Public speaking, making mistakes, being judged
Support	Requests for kind, patient and responsive teaching
Trust	Confidence in the teacher's ability to guide them
Anxiety	Evaluation situations and performance in class
Confident	Positive self-perception based on prior improvement
Confidence	Expressed as both present and lacking, especially in oral interaction
Motivated	Willingness to engage despite emotional barriers
Appreciation	Gratitude for teaching style or classroom atmosphere
Shy	Self-reported inhibition in class participation
Afraid	Specific to mistakes and performance anxiety
Insecure	Pronunciation, grammar and fluency-related issues
Optimism	Belief that improvement is possible
Engagement	Intention to participate actively if conditions are safe and supportive
Excited	Anticipation about course or teacher
Doubt	Uncertainty about ability to succeed due to past setbacks
Worry	Related to exam results and self-perceived readiness
Frustration	Recurring struggles with English exams
Enthusiasm	Expression of strong interest and enjoyment in learning English
Determined	Language learning as a personal challenge or goal

investigations.

The majority of students (12 out of 14) reported perceiving a positive emotional change immediately following the interaction.[2] Their reflections indicated feelings of reassurance, increased motivation or a renewed willingness to face challenges. Two students expressed a neutral response, stating that the experience had not substantially changed their mindset or feelings. No student reported a

[2] These reports reflect short-term, self-reported reactions and should not be interpreted as evidence of sustained emotional change or behavioural impact.

negative emotional outcome. A thematic analysis of the reflections revealed several key areas of impact (Table 4):

The most frequent theme was increased *motivation*, with students reporting a renewed sense of purpose or a shift in mindset that helped them to see language learning as more manageable and less threatening. Many students also expressed *validation*, noting that the AI's response made them feel understood, supported or less alone in their fears. One student described an unexpected emotional response, pointing to a form of emotional release, while another acknowledged lingering doubt about their abilities despite the intervention.

8. Discussion

8.1. Discussion of sentiment analysis from the padlet corpus

The findings of this analysis lay bare the emotional complexity students bring into the EAP classroom. While FLA remains a recurring theme, the emotional landscape is far more composite than one of fear or inhibition alone. Many learners articulated both *apprehension* and *hope* in the same post, suggesting that emotional ambivalence is common in tertiary language learning environments:

(1) I *hope* to improve my speaking skills because I'm *too anxious* to speak and maybe being an active part of this course could help me; I feel a bit *afraid* both because it's not easy to overcome *anxiety* but also I want to prove myself that I can do this.[3]
(2) Honestly, I'm *very worried* about this third year English Course. I know that my English level isn't excellent so surely I'll have many difficulties. *Anyway*, I got a shot. Teachers are very competent and kind […] I *hope* to pass the exam and be proud of myself.
(3) I'm *really afraid* of speaking in front of the class, because I'm *not confident at all* about my pronunciation and I'm *shy*. But I *hope* that this course can help me to go beyond my mental limits.

Examples 1, 2 and 3 illustrate how negatively charged emotions, often intensified through premodifiers such as *too*, *very* and *really*, coexist with positively oriented expressions of *hope*. These hopeful elements are frequently constructed around improvement in language skills, success in academic performance or support in overcoming internal barriers. Interestingly, in Example 2, the discourse marker *anyway* cues a turning point in the learner's narrative, marking a transition from an anxious mindset to a more forward-looking, resilient attitude. Importantly, emotions such as hope and fear frequently co-occur within the same reflection, suggesting not emotional resolution but emotional tension. Rather than cancelling each other out, these emotions appear to operate simultaneously, producing a state of ambivalence that is characteristic of anxiety-sensitive EAP contexts.

For classroom practice, this finding carries several implications. The prevalence of mixed sentiments suggests that learners are not paralysed by fear alone but are actively working through emotional challenges in tandem with motivation and personal goals. Teachers can support this balance by validating emotional struggles while reinforcing progress and effort, rather than focusing exclusively on linguistic accuracy or performance, as shown in the examples below:

(4) […] I trust *** and his confidence in explaining the topics with a lot of ilarity since he is very *engaging*, *joking* and also very *fascinating* I have to say.
(5) […] I think that a teacher could help people with the same issue that I have by making the lesson more interactive but *without calling specific names*, in order to *let the students decide when they feel confident to speak*.
(6) […] I think that a good teacher always knows how to *listen to his students and help them*, he has to help them defeat their weaknesses also.

As Examples 4, 5 and 6 show, the qualities students prioritise in a teacher often transcend technical expertise. Emotional and interpersonal traits such as being engaging, empathetic and supportive emerge as central to their expectations. Students express a desire for teachers who respect their boundaries, allow them to engage at their own pace and remain available when support is needed. In Example 4, the student even uses the adjective *fascinating* to describe the teacher, a term that arguably moves beyond pedagogical evaluation into more personal territory. Interestingly, the student appears aware of this overstep and linguistically marks it through the hedging expression *I have to say*, signalling self-consciousness about the degree of personal investment expressed.

The frequency of *hope*, support and *trust* as dominant emotional keywords indicates students' desire for more than just instruction: they seek relational connection, encouragement and a safe space to grow. This means that the teacher's role extends beyond language facilitation: it includes managing emotional climate, offering reassurance and being present as an emotionally responsive guide. Students explicitly connected their confidence to how approachable, patient or supportive they perceived the teacher to be:

(7) The teacher could help the students by being *supportive* and *not making them feel wrong* about the mistakes.
(8) I believe that *** could help us to improve our abilities and to encourage us to speak in public.

[3] All data collected from students during the Padlet-based Needs Analysis have been retained in their original form, including any language errors, to preserve the authenticity of the responses. The only modification made was the anonymisation of the teacher's name, which has been replaced with three asterisks to protect the identity of the individual referenced.

Table 4
Frequency of emergent themes in student reflections after AI-Supported reframing.

Theme	Frequency
Increased motivation	9
Validation	5
Increased confidence	1
Emotional release	1
Persistent doubt	1

In Examples 7 and 8, the teacher is ideally portrayed as someone capable of providing emotional support and fostering a classroom environment where learners feel safe to experiment with language without fear of embarrassment or shame. The emotional function of the teacher is foregrounded, not only as a facilitator of knowledge but as a protector of psychological safety. In Example 8, the use of the modal verb *could* signals a polite yet clear suggestion: the learner expresses a desire for the teacher to actively encourage public speaking as a way of confronting and eventually overcoming fear. This reflects an expectation that the teacher will play a supportive role in helping students to work around emotionally charged situations, such as speaking in front of others: a well-documented anxiety trigger in language learning contexts.

Further, the Emotion-Context Mapping (Section 3.3) reveals that learners often associate *fear* and *shyness* with specific classroom events, most commonly public speaking or being corrected in front of peers. This brings into focus the need to carefully manage these moments: well-known strategies such as anonymous speaking tools, pair work before open class discussion and delayed correction can mitigate anxiety while preserving participation. Similarly, non-evaluative practice activities can provide room for experimentation without fear of judgment. By looking at the following examples, it is possible to identify the anxiety-eliciting triggers most frequently reported:

(9) I'm terrified of the idea of *speaking in public* or *making mistakes.*
(10) Personally I am a very shy person but at the same time *I really would love talking in English fluently* and feeling confident while *talking in public.*
(11) I also *want to be able to speak in front* of other people because I'm afraid to *make mistakes.*
(12) I'm afraid to *speak with other people* because I'm afraid to *make mistakes.*

In Examples 9, 11 and 12, public speaking and the possibility of making mistakes are closely linked to feelings of fear, with the use of the word *terrified* in Example 9 suggesting a heightened emotional charge. However, these posts do not express an active intention to overcome the fear; the emotional stance is more descriptive than proactive. In contrast, Examples 10 and 11 introduce a compensatory element: the emotional triggers of FLA accompanied by expressions of volition and aspiration. Phrases such as *want to be able to speak* and *really would love talking in English fluently* reflect a forward-looking mindset. Here, desire and intention work as counterweights to fear, indicating a readiness to engage with the discomfort in pursuit of growth.

The presence of *appreciation*, *determination* and *engagement*, though less frequent, suggests that many learners are not only emotionally invested but actively seeking growth:

(13) What I expect from this course is to improve my general English knowledge and to feel much more confident in using phrasal verbs on a daily basis. In this journey, I really hope that I will be able to *gain more tenacity*, *determination*, *and a better pronunciation.*
(14) Teachers are very competent and kind, especially *** so *I only need a daily and constant study* of the language to *improve my difficulties and be more self-confident*.
(15) This year *I feel more confident with my knowledge, I know I have improved a lot*, especially in talking freely, *I'm not shy anymore in class*, and *I'm not afraid in making mistakes.* […] *I want to be confident with the way I speak*, *overcoming my anxiety*.

In Example 13, the student prioritises the acquisition of personal qualities such as *tenacity* and *determination* over linguistic skills like *pronunciation*, which is mentioned last in the sentence listing their development goals. This ordering suggests that the learner sees emotional resilience as pivotal to their progress. In Example 14, the student appears to already possess a sense of what is needed to advance in language learning, explicitly referencing self-confidence, a trait that lies outside the scope of technical language skills, but is central to personal growth. Finally, in Example 15, the student reports having gained confidence in their language knowledge and recognises tangible progress. Of particular interest is that they also state that the fear of making mistakes no longer inhibits them. Yet, in the final sentence, the use of the modal *want* in *I want to be confident with the way I speak* reveals that this self-assurance is still a goal rather than an achieved state, pointing to a learner who is both reflective and aspirational.

A methodological point requires emphasis: the absence of Negative classifications should not be read straightforwardly as evidence that learners did not experience strongly negative affect. Two non-exclusive explanations are plausible. First, the prompt itself invited students to discuss expectations and teacher support, which may elicit more hopeful, future-oriented narratives even when anxiety is present. Second, LLM classifications may be sensitive to prompt framing and to the presence of "repair" or optimism markers (i.e., but, anyway, I hope), potentially biasing outputs toward Mixed rather than Negative. For this reason, 0 Negative is treated here as a finding

that flags possible methodological artefacts and motivates the need for sensitivity checks (i.e., alternative prompt framings, human-coded validation, and comparison with established affect measures) in future work.

8.2. Discussion of the AI-driven emotional reframing task

The AI-supported reframing activity was designed as a brief exploratory exercise to examine how learners subjectively respond to AI-generated supportive language when invited to articulate a negative thought related to EAP learning. The results indicate how students described their immediate emotional reactions after interacting with ChatGPT, offering insight into how such AI-mediated support was perceived in the moment, as can be seen in some of the examples below:

(16) ChatGPT *reassured* me but I'm always nervous and anxious to speak in public.
(17) *I feel more motivated*, as ChatGPT *helped* me see my fear in a different light.
(18) After receiving the support, *I felt more confident and less nervous.* I know *I'm not alone in my fears*, and this helped me.
(19) I'm an emotional person so *I 'cried' a little bit*, but in a good way. It was like *being heard and helped.* I didn't expect that
(20) Now *I feel calmer and more determined to improve*, even if I'm still not perfect.

Far from suggesting that AI-driven support is a panacea capable of resolving all the emotional challenges posed by FLA, students' feedback suggests that such tools may be experienced as emotionally supportive by some learners in the short term, without resolving underlying anxiety. As shown in Example 16, the clause introduced by *but* signals a lingering sense of nervousness and anxiety, even after receiving emotional support via ChatGPT. However, rather than invalidating the intervention, this highlights the realistic limitations and complementary potential of AI in emotional regulation. Across the examples, participants attributed a variety of affective qualities to the AI interaction: it serves as a source of reassurance (Example 16), a motivation-booster (Example 17), a confidence-booster as well as a mitigator of nervousness (Example 18) and a catalyst for calmness and determination (Example 19). These multiple roles suggest that, when carefully prompted, AI can support learners in managing FLA in ways that are emotionally meaningful, even if not curative. Although the present data indicate positive emotional shifts in the short term, it remains an open question whether such effects are sustained over time or translate into observable behavioural changes in classroom participation. Longitudinal research would be necessary to ascertain the durability of these impacts.

For instance, Example 17 illustrates how one participant interpreted the interaction as prompting a shift in perspective. The student's use of the expression *see my fear in a different light* suggests that the AI-supported dialogue prompted a cognitive shift, allowing the learner to reinterpret their fear not as a fixed obstacle, but as something manageable and open to transformation. This metaphorical language points to a deeper internalisation of the reframing process, showing that the interaction did not simply comfort the learner, but actively contributed to reshaping their perspective on language learning and anxiety.[4] This reframing aligns with SLA research on growth-oriented mindsets, which emphasises learners' beliefs about the malleability of competence as central to persistence and risk-taking (Dörnyei & Ryan, 2015; MacIntyre & Gregersen, 2012). While the present data do not permit claims about sustained mindset change, they illustrate how AI-mediated language may momentarily cue more adaptive self-appraisals.

While Example 17 evinces a cognitive shift in the way fear is conceptualised, the reflection in Example 18 adds a powerful interpersonal dimension, centring on the learner's perception of emotional isolation and its transformation. The student initially describes a sense of emotional isolation, believing that their fears were uniquely personal. However, after sharing these feelings with the AI, they report a change in perspective, realising that such fears are, in fact, commonly experienced. In this sense, the AI interaction was described by the learner as contributing to a sense of *common humanity*, a subcomponent of *self-compassion* defined as the recognition that personal struggles and negative emotions are part of the shared human condition (Neff, 2003).[5] This shift from isolation to connection is especially meaningful in language learning contexts, where anxiety and fear of judgment can easily be internalised as signs of personal inadequacy. Here, the AI's empathetic tone and normalising feedback may have activated a psychological process of emotional alignment with others, thereby promoting resilience.

Taking this one step further, Example 19 proved deeply emotional, not only for the student but also for the teacher observing the interaction in real time. The student reports being brought to the brink of tears by the AI-generated feedback, a reaction that powerfully demonstrates the pedagogical potential of emotionally responsive digital tools. Importantly, the tears are described as *in a good way*, showing that this was not an emotional breakdown, but rather a release triggered by feeling heard, supported and comforted. The student's emotional reaction becomes a kind of emblem, a visible marker of affective impact and serves to make manifest the success of the intervention in producing reassuring, validating and prosocial emotions. Ultimately, the interaction opened a renewed space for empathy and emotional connection, both for the learner and the class as a whole.[6]

[4] Such language indicates a subjective reframing experience, not a measurable reduction in FLA, and should be understood as an immediate interpretive response rather than a durable outcome.

[5] Whether such perceptions persist beyond the interaction or translate into changes in classroom engagement cannot be determined within the present design.

[6] Alternative explanations must be considered. Reported reassurance may stem from the immediacy, fluency and politeness of AI-generated text rather than from substantive emotional regulation or cognitive restructuring. In this sense, perceived benefits may reflect the interactional affordances of receiving empathetic language on demand, independent of longer-term affective change. Recognising these possibilities reinforces the exploratory nature of the findings and cautions against over-interpretation.

A prominent theme in students' responses was increased motivation, often linked to the AI's supportive tone and non-judgmental guidance. Several students expressed validation, remarking that the interaction made them feel heard and understood. These emotional reactions matter, especially in high-pressure EAP contexts, because they can considerably affect learners' willingness to engage in speaking tasks, take risks and persist despite difficulty, a pattern consistently reported in recent reviews of AI-assisted language learning and learner emotions (Zhang & Liu, 2025). In this regard, let us focus on a few examples:

(21) Firstly, I would say that *I felt more comfortable after using ChatGPT. Before, I was worried* about not being good enough, *but now I feel like I can improve.*
(22) *I feel finally understood.* I asked ChatGPT to help me because I feel very anxious about making mistakes, and *it gave me hope.*
(23) *I felt understood*, and *I really liked* how AI communicated with me *without judging.*

Once again, in Example 21, we observe a shift from emotional discomfort to a more comfortable state. This transition is linguistically denoted by the comparative structure *more comfortable*, the temporal marker *before*, which creates a clear contrast between the learner's emotional state pre- and post-interaction with ChatGPT and the use of the adversative conjunction *but*, which introduces the improvement. These elements together suggest that the learner is not simply reporting a static feeling, but rather narrating a change in emotional state, further calling into prominence the positive emotional impact of the AI-supported intervention. In the same vein, Examples 22 and 23 bear witness to the sheltering effect experienced by students after receiving feedback from the AI. In both cases, learners reported feeling understood, as if the AI had emotionally connected with them: an interaction that engendered a sense of hope and psychological comfort. Equally important, as illustrated in Example 23, is the observation that the AI does not issue harsh judgments; rather, it limits itself to gently proposing alternative perspectives or solutions. This approach is particularly valued in academic settings, which are often marked by high-stakes performance, peer comparison and intense pressure, conditions known to contribute to anxiety and academic distress (Putwain & Daly, 2014; Scandurra et al., 2024). In such contexts, the absence of judgment and the presence of empathetic guidance are not peripheral luxuries, but essential tools for fostering emotional safety and sustained engagement.

Despite these promising outcomes, caution must be exercised in the classroom use of AI. There is a risk of over-reliance, where learners may begin to substitute real interpersonal exchanges with machine feedback, potentially weakening human relational dynamics. In addition, privacy concerns and the inherent limitations of machine empathy speak to the importance of positioning AI as a complement, not a replacement, to human interaction and emotional responsiveness in educational settings.[7]

From a pedagogical perspective, this activity offers a low-effort, low-stakes exploratory activity that can be integrated into EAP instruction to address the emotional side of language learning. Asking students to externalise their fears, engage in reflective dialogue and receive growth-oriented feedback promotes the creation of an emotionally safe space conducive to resilience and autonomy. Such activities are especially useful at the beginning of a course or before high-stakes assessments, when anxiety levels are likely to peak. In light of this, the following points are offered as design considerations rather than pedagogical prescriptions:

- Incorporating guided emotional reflection prompts into regular lessons.
- Using AI tools like ChatGPT to supplement affective support and model positive self-talk.
- Facilitating reframing exercises where students consciously shift from negative to constructive narratives.
- Creating opportunities for anonymous emotional expression, which may be more comfortable for shy or insecure students.
- Encouraging peer discussion of emotional challenges to normalise and destigmatise fear or frustration.

These strategies can help students to move from a performance mindset focused on ‘getting it right’ to a developmental mindset that values experimentation and progress. At the same time, the activity betokens the teacher's evolving role as not only a linguistic facilitator (Littlewood, 2007), but also a curator and guardian of emotionally supportive learning environments.

While most students responded positively, a small number expressed neutrality or limited emotional change, reminding us that AI cannot replace human empathy or teacher-student rapport. Rather, such tools should be understood as complementary, best used in tandem with interpersonal feedback, encouragement and classroom routines that promote emotional safety. To better understand it, let us consider Example 24:

(24) As soon as I was asked to do this activity *I felt a little bit strange*, because I've never done something like this before. *Now* I'm feeling peace with myself. In my perspective it changed my approach to the external world, I don't want to give power to judges

[7] AI-mediated emotional support in anxiety-sensitive contexts raises risks that extend beyond data privacy. First, learners may develop dependency on always-available reassurance, potentially displacing peer or teacher support. Second, AI “empathy” may be misread as relational understanding, creating unrealistic expectations or emotional over-disclosure. Third, routine use may shift classroom relational dynamics by relocating affective labour from human relationships to automated interaction. Fourth, teachers may become indirectly responsible for managing emotional disclosures prompted by technology. For these reasons, AI use should be bounded: framed as reflective language practice rather than counselling; accompanied by clear opt-out routes; designed around low-disclosure prompts; and embedded in classroom norms that prioritise human support and referral pathways when distress is substantial. Future research should examine not only benefits but also these relational and dependency dynamics.

and to my judges on me. I want to transform these into positive thoughts. I can be able to do this only by loving and understanding myself, and changing my approach to the learning of a language, telling me: you can do it!

In this case, the informant expresses initial scepticism and a sense of disorientation about the activity, particularly because, as they point out, it was their first time engaging in such a task. This reaction is entirely understandable; after all, the idea of forming a connection with an artificial, non-human entity may feel unnatural or even faintly dystopian. However, the subsequent use of the adverb *now* marks a narrative and emotional turn. The exchange with the AI leads the learner to a state of inner peace, coupled with the realisation that the internalised judges, this being, those critical voices that eat away at our self-confidence, can be disempowered. The learner reframes these negative thoughts into growth-oriented, forward-looking narratives, culminating in the self-affirming declaration *you can do it!* This final statement not only conveys renewed motivation but also suggests a moment of reflective re-articulation rather than a confirmed change in emotional trajectory, where the student begins to reclaim ownership of their emotional and educational journey.

9. Conclusion and limitations

As a proof-of-concept investigation, this study was designed to evaluate the feasibility and pedagogical potential of AI-driven affective tools in EAP rather than to offer generalisable claims. The scale of the dataset and the exploratory nature of the analyses are therefore not weaknesses but inherent characteristics of early-stage conceptual research, allowing for close qualitative engagement with learners' emotional expressions and with the affordances of AI for affective scaffolding. The sentiment analysis relied on GPT-4, a probabilistic language model; however, the study implemented systematic procedures, such as prompt standardisation, human–AI triangulation and output verification, to ensure interpretive stability and methodological transparency. These approaches are consistent with emerging best practices in educational applications of large language models, where controlled prompting and human oversight are central to ensuring reliability. The findings should be interpreted within this framework: as evidence of feasibility, conceptual soundness and pedagogical promise, rather than as definitive empirical outcomes.

Under this exploratory design, the study provides an initial demonstration of how AI can support the emotional dimension of language learning. The Padlet corpus revealed an affective landscape characterised by ambivalence (i.e., fear, self-doubt and performance anxiety coexisting with hope, motivation and trust). GPT-based sentiment analysis proved capable of identifying these complexities, suggesting that AI may play a role in helping instructors monitor and address learners' affective needs in a scalable, time-efficient way. The reframing activity further showed that structured interactions with ChatGPT can facilitate short-term emotional shifts, with many students reporting increased reassurance, motivation or a sense of being understood. These preliminary effects illustrate how AI tools might complement, rather than replace, teacher support by providing private, judgment-free spaces for emotional processing. While the present study involved undergraduate learners at comparable proficiency levels, future research should examine how AI-mediated affective scaffolding may need to be adapted for lower- or higher-proficiency EAP cohorts, where anxiety triggers and self-regulatory capacities may differ.

Together, these findings suggest that affect-aware AI has meaningful potential in EAP pedagogy. By assisting teachers in diagnosing affective challenges and offering students accessible opportunities for reflective emotional support, AI-driven interventions may help create more inclusive classrooms where learners feel psychologically safe to participate, take risks and develop linguistic confidence. As with any proof-of-concept work, further empirical research is needed to examine long-term effects, expand data sources and explore the interplay between AI-mediated and human-mediated emotional support. Nonetheless, the present study establishes a strong conceptual and methodological foundation for this emerging line of inquiry, demonstrating that AI-driven sentiment analysis and reframing can serve as viable and pedagogically valuable tools for addressing FLA in EAP contexts.

Declaration of generative AI and AI-assisted technologies in the manuscript preparation process

During the preparation of this work the author used ChatGPT (OpenAI) to support tasks related to language refinement and document organisation. After using this tool, the author reviewed, revised, and edited the content as needed and takes full responsibility for the content of the published article.

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