



EFL Freshmen's Emotions and Emotion Regulation Strategies in AI-Supported Collaborative Argumentative Essay Writing

Berlinda Mandasari ^{1*} , Yazid Basthomi ^{2,5}, Miram Anugerahwati ³,
Anik Nunuk Wulyani ⁴

^{1,2,3,4} *The State University of Malang, Indonesia*

¹ *Teknokrat Indonesia University, Indonesia*

⁵ *Universiti Sultan Zainal Abidin, Malaysia*

Received: 2025/09/25

Accepted: 2025/11/09

Abstract: The integration of artificial intelligence (AI) in higher education has transformed writing instruction. Still, little is known about how AI-supported collaboration shapes first-year students' emotional experiences during argumentative essay writing. Emotions influence students' engagement, idea negotiation, and overall writing performance, particularly in the English as a Foreign Language (EFL) context. This study investigates EFL freshmen's emotions and emotion regulation strategies in AI-supported collaborative argumentative essay writing across the stages of planning, execution, and evaluation. Using a multiple case study design, seven EFL freshmen from a private Indonesian university participated. Data were gathered through reflective journals and in-depth interviews, and were analyzed thematically. The findings show that students experienced both positive and negative emotions throughout the writing process, with negative emotions, such as anxiety, confusion, overwhelm, and stress, being more dominant. These emotions were linked to cognitive demands, including topic selection, evidence integration, and revision, as well as social factors such as unequal contribution and fear of negative judgment. Although AI tools helped with linguistic accuracy and text organization, they did not fully address deeper emotional and motivational challenges. Students used various regulation strategies, including attention deployment (seeking online sources), cognitive change (breaking tasks into smaller ones, positive self-talk, task prioritization), and response modulation (taking breaks, consulting AI tools). The study highlights the need for pedagogical frameworks that combine emotional support with cognitive skill development to promote equitable and reflective collaboration in AI-supported EFL writing.

Keywords: AI-supported Collaboration, Argumentative Writing, Emotion, Emotion Regulation Strategies.

* Corresponding Author.

Authors' Email Address:

¹ Berlinda Mandasari (Berlinda.mandasari.2302219@students.um.ac.id; berlinda@teknokrat.ac.id), ² Yazid Basthomi (ybasthomi@um.ac.id), ³ Miram Anugerahwati (mirjam.anugerahwati.fs@um.ac.id), ⁴ Anik Nunuk Wulyani (anik.nunuk.fs@um.ac.id)



Introduction

While collaborative writing in the English as a Foreign Language (EFL) context is recognized as an effective means of improving students' writing skills (Ardiasih et al., 2019; Latifah et al., 2020; Miftah & Cahyono, 2022; Veramuthu & Shah, 2020), it also presents complex challenges. Essay writing, especially argumentative, requires coherent claims, evidence-based reasoning, and the integration of structural, dialogical, and linguistic elements (Latjupu et al., 2025; Su et al., 2023). EFL learners often struggle to generate arguments, address counterclaims, and integrate evidence, and such difficulties are heightened in collaborative contexts by negotiation breakdowns, conflicting perspectives, and unequal participation (Chen & Yu, 2019). Artificial intelligence (AI) has been adopted to ease these challenges by offering feedback, linguistic support, and scaffolding, yet the systems fall short of expectations, struggling with logical reasoning, ambiguity, and occasionally producing misleading or nonsensical output (Su et al., 2023; Zhang & Li, 2021). These challenges affect students' emotions and engagement.

Emotions are characterized as complex, multifaceted phenomena that integrate affective, cognitive, physiological, motivational, and expressive components, shaping individuals' learning and behavior (Li et al., 2024; Pekrun, 2006). Mitigating these emotions needs regulation strategies. The term emotion regulation describes an individual's internal and external mechanisms for adjusting, assessing, and controlling their emotions to achieve predetermined objectives (Gross, 2015). In the EFL writing context, understanding emotions is crucial because negative feelings, such as anxiety or frustration, can hinder idea generation, reduce motivation, and weaken proficiency (Farsani et al., 2024). Effective regulation, by contrast, supports focus, persistence, and confidence, making it essential for both writing development and academic success (Boekaerts & Pekrun, 2015).

In the global context, numerous studies have examined EFL students' emotions and regulation strategies in collaborative writing and with AI integration. For instance, Alqasham (2022) revealed that online platforms not only fostered enjoyment and excitement through corrective and teacher feedback but also caused boredom and anxiety due to limited use and distractions. Similarly, Chen and Yu (2019) reported benefits such as improved writing, idea sharing, and reduced stress, alongside drawbacks like limited critical thinking, loss of confidence, and isolation. With AI, Yang and Zhao (2024) showed that Chinese EFL students experienced both positive and negative emotions but regulated them effectively, while Ismail and Alharkan (2024) highlighted AI's role in boosting resilience, self-efficacy, and engagement.

In the Indonesian context, studies on writing have largely focused on students' writing anxiety across different learning settings. [Wahyuni et al. \(2019\)](#) examined writing anxiety in offline environments, whereas [Cahyono et al. \(2023\)](#) investigated it in online learning contexts. [Jawas \(2019\)](#) and [Salikin \(2019\)](#) explored factors contributing to writing anxiety and coping strategies, with [Salikin \(2019\)](#) further providing a gender-based analysis of male and female students. [Kurniasih et al. \(2023\)](#) compared writing anxiety between sophomores and juniors, and [Ro'ufiyati and Mahbub \(2023\)](#) studied it specifically in narrative essay writing at the university level. Beyond anxiety, [Agesty et al. \(2021\)](#) examined the influence of writing attitude and emotional intelligence on writing performance. Other scholars, such as [Veniaty et al. \(2023\)](#), extended the scope by investigating conflict in collaborative writing.

Studies on writing emotions have mostly examined writing anxiety in narrative composition and conflicts in collaborative writing. Nonetheless, the study on the emotions of freshmen engaged in AI-supported collaborative argumentative writing in each writing stage, comprising outlining, drafting, and revising, is limited. A more recent study by [Pratama et al. \(2025\)](#) explored the impact of a human-AI collaborative writing strategy on the argumentative skills of Indonesian EFL students. However, their focus was limited to writing outcomes rather than the emotional processes involved. Previously, [Farsani et al. \(2024\)](#) studied how Iranian EFL postgraduate students managed negative emotions during individual argumentative writing. However, their study did not involve freshmen or AI-supported collaborative contexts. Collaborative argumentative writing requires not only linguistic accuracy and coherence but also negotiation, justification, and conflict management ([Pratama et al., 2025](#)). Freshmen, as they transition from high school to university, are still adapting to new academic expectations, learning environments, and writing conventions, which affect their learning and emotions. It is crucial to understand the freshmen's emotions in AI-supported collaborative argumentative writing, as emotions have a significant impact on engagement, idea negotiation, and the quality of writing in technology-mediated learning contexts. Examining emotions across different writing stages is also essential because emotions are dynamic and context-dependent, varying as students move through planning, drafting, and revising, each of which involves distinct cognitive and social demands that trigger different emotional responses.

By examining EFL freshmen's emotions and regulation strategies across the writing stages, the study seeks to capture their voices and the complexities of becoming confident academic writers through technology-assisted collaboration. The study contributes to the development of theoretically grounded and pedagogically informed frameworks for

AI-integrated writing instruction that foster emotional awareness, learner engagement, and effective academic writing practices in higher education contexts. Therefore, the present study addresses the following two research questions:

1. What are the EFL freshmen's emotions in AI-supported collaborative argumentative essay writing in each stage?
2. How do they regulate their negative emotions?

Methods

This study employed a qualitative research approach by utilizing a multiple case study design. A case study illustrates a unique example of real people in authentic contexts (Widiati et al., 2018). As a qualitative approach that examines cases in non-numeric data, such as words (Farsani et al., 2024), this approach is well-suited to examine emotions and emotion regulation strategies, as the multiple case study enables an in-depth exploration of the phenomenon of emotions in AI-supported collaborative argumentative essay writing.

Setting and Participants

The participants of this study were seven EFL freshmen taking an Essay writing course at a private university in Indonesia. They comprised three female (PF1, PF2, PF3) and four male EFL freshmen (PM1, PM2, PM3, PM4). The names are pseudonyms used to ensure participants' anonymity. The age range of participants was between 18 and 21 years old. Despite the relatively small number of participants, this study aims to avoid generating shallow findings by focusing on EFL freshmen's emotions and emotion regulation strategies in the Indonesian context, as Creswell (2014) suggests that adding more participants could reduce the researchers' ability to provide a detailed and in-depth portrayal. Purposive sampling was used to select the participants. Within the purposive sampling framework, homogeneous sampling, as suggested by Rai and Thapa (2015), was utilized in which similar cases (in this case, EFL freshmen) were chosen for intensive and in-depth exploration. These freshmen were purposively selected based on their shared background as first-year EFL students enrolled in the same essay writing course, which ensured similarity in academic level, language proficiency, writing challenges, and their commitment to sharing their insights throughout the entire research process. Such homogeneity was intended to provide richer insights into how a fairly homogenous group experiences emotions and regulates emotions during AI-supported collaborative argumentative writing.

Instruments

Two instruments were used in this study: reflective journals and in-depth interviews. Reflective journals enhance learning by encouraging students to articulate and evaluate their feelings, beliefs, and knowledge while helping them clarify expectations, respond to learning situations, and make sense of their experiences before, during, and after learning activities (Henter & Indreica, 2014; Lutz & Paretti, 2019). Drawing on this perspective, the use of reflective journals aimed to obtain a deeper understanding of EFL freshmen's emotional experiences and the emotion regulation strategies they employed while engaging in AI-supported collaborative argumentative essay writing in the *Essay Writing* course. The reflective journal instrument consisted of a series of open-ended questions designed to elicit students' reflections on their emotions and emotion regulation strategies during different stages of the writing process. Students were asked to complete the reflective journal three times, at the end of each writing stage: planning, execution, and evaluation, following the PLEE cyclical model of the writing process (Rosário et al., 2019). This model conceptualizes writing as a process that integrates cognitive, linguistic, and metacognitive dimensions, emphasizing how writers continually plan, produce, and evaluate their writing to achieve effective communication.

The second instrument was an in-depth interview. According to Creswell and Creswell (2017, p. 333), qualitative interviews “...involve unstructured and generally open-ended questions that are few in number and intended to elicit views and opinions from the participants”. Given this explanation, this study employed an open-ended interview format involving a similar set of questions for all interviewees in a consistent order, which ensures comparability across participants while still permitting the collection of rich qualitative data. Importantly, the same set of questions was used for both the reflective journals and the in-depth interviews to maintain coherence and depth in the data obtained. Additionally, both instruments were developed by the researchers and subsequently reviewed and validated by experts to ensure their clarity, relevance, and alignment with the study's objectives.

Data Collection and Data Analysis

Prior to data collection, the first author met with the participants and the course lecturer to explain the objectives of the study. An informed consent form was distributed to ensure ethical considerations and protect participants' rights. Approval was granted by the Ethics Committee of Universitas Negeri Malang (KEP UM) under reference number No.22.03.06/UN32.14.2.8/LT/2025. The argumentative essay topic was conducted over five

sessions, carried out in three writing stages: planning, execution, and evaluation, which enabled the students to systematically organize their ideas, compose collaboratively, and reflect on their writing performance. The planning stage (meetings 1-2) involved introducing the study objectives, lecturer instructions, and instructional materials on argumentative essays. In the second meeting, the EFL freshmen collaborated in peer groups to develop outlines for their essays. The execution stage (meetings 3-4) focused on expanding the outlines into paragraphs and engaging in discussions with peers, the lecturer, and AI tools, followed by revisions. The evaluation stage (meeting 5) required students to revise, present their final draft, and submit their completed essays through the institution's designated learning management system. Throughout all stages, the EFL freshmen were permitted to ethically use AI tools and electronic sources to support the development of their argumentative essays.

Reflective journals were administered through *Google Form*, containing open-ended questions, asking freshmen to describe their emotions and regulation strategies at each stage of the collaborative argumentative writing process. Links were shared via *WhatsApp* after each stage, prompting students to provide a detailed description of their emotional experiences with peers, the lecturer, and AI tools. To validate these data, in-depth phone interviews lasting 40–50 minutes were conducted at the end of the sessions, allowing participants to respond in Bahasa Indonesia, English, or both. The interviews, which mirrored the reflective journals' questions, were audio-recorded with consent. Data were analyzed thematically following [Braun and Clarke's \(2014\)](#) framework to identify and interpret recurring patterns in students' emotional experiences and strategies. NVivo software was employed to systematically organize, code, and manage the qualitative data.

Findings

EFL freshmen's emotions in AI-supported collaborative argumentative essay writing

Planning Stage

In the planning stage of AI-supported collaborative argumentative essay writing, EFL freshmen reported experiencing a range of negative emotions. These emotions were primarily associated with the cognitive and social demands of the task, including generating ideas, selecting appropriate topics, and gathering credible evidence to support their claims. The negative emotions are shown in the following figure.

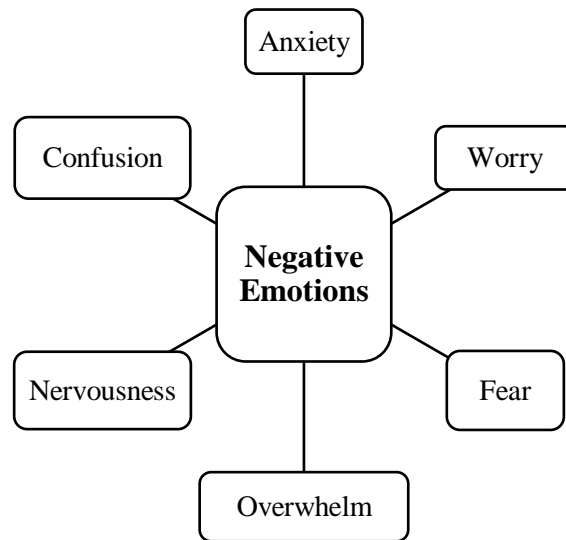


Figure 1. Negative Emotions in the Planning Stage of AI-supported Collaborative Argumentative Essay Writing

Note. Figure 1 shows EFL freshmen's negative emotions in the planning stage of AI-supported collaborative argumentative essay writing. Own work.

As seen in Figure 1, the findings indicate that EFL freshmen experienced a range of negative emotions, such as anxiety, worry, fear, confusion, nervousness, and overwhelm in the planning stage. Specifically, anxiety, worry, and fear occurred when the freshmen felt uncertain about their ability to generate valid arguments, provide evidence-based content. A freshman and a fear of judgement, PM4 reflected, *"I feel scared and anxious because an argumentative essay is a more serious type of writing, so the content has to be based on data and factual. Especially since my peer is a senior, I find it hard to express my ideas because I don't want to come off as dominant or selfish"*. Similarly, PF2 confirmed, *"I felt anxious and worried. I thought, 'Can I do this?' I had to really think hard and search news articles to check if the information was true. My partner only said yes-yes to my ideas; she didn't contribute. That made me feel annoyed."*

Confusion and nervousness occurred when EFL freshmen were confronted with the complexity and unfamiliarity of argumentative writing. As PM3 expressed, *"I honestly felt really dizzy, Miss, because I was so confused. We had to include data, supportive evidence, and a clear stance. At first, we were confused about what topic to choose. Maybe because we didn't really like argumentative writing"*. Similarly, PF3 confirmed, *"I felt nervous because an argumentative essay is new for us and based on research, not just our feelings or imagination."* Lastly, overwhelm occurred when EFL freshmen perceived the demands of argumentative writing as excessive and beyond their personal interests. PM1 stated, *"I feel*

overwhelmed, as writing argumentative pieces means I need to read more articles and data, which is something I don't really enjoy”.

Execution Stage

The data revealed that EFL freshmen experienced a range of both positive and negative emotions during the execution stage of AI-supported collaborative argumentative essay writing. These emotions were shaped by the cognitive demands of the writing task as well as the dynamics of collaboration with peers. While some freshmen reported moments of relaxation, others expressed negative emotions such as confusion, disinterest, disappointment, overwhelm, and stress, as presented in Figure 2.

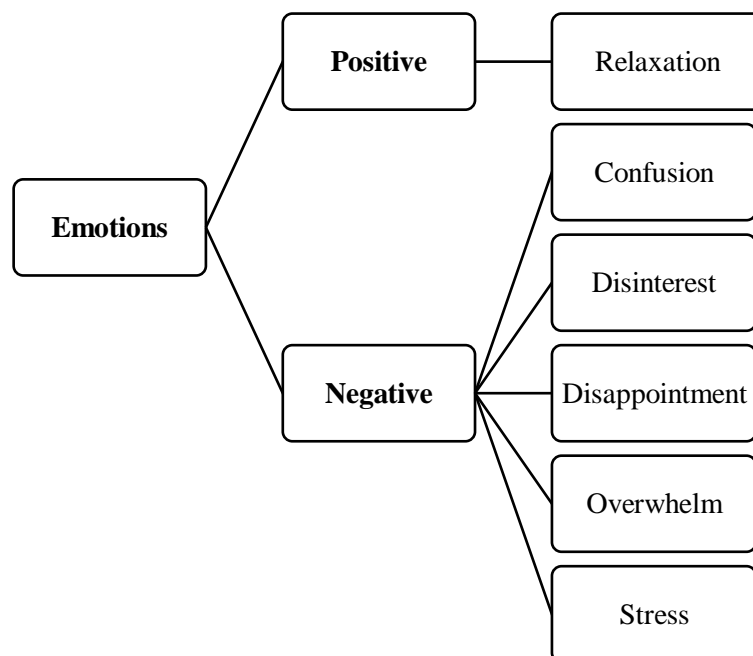


Figure 2. Emotions in the Execution Stage of AI-supported Collaborative Argumentative Essay Writing

Note. Figure 2 shows the positive and negative emotions of EFL freshmen in AI-supported collaborative argumentative essay writing. Own work.

The execution stage is marked by the freshmen's attempt to develop their ideas or outline into paragraphs, discussion with peers and the lecturer, and revision. EFL freshmen experienced positive and negative emotions. In terms of relaxation marked as positive emotion, PF2 explained that the drafting stage felt less stressful once sufficient data had been gathered, as stated, *“When drafting, I felt more relaxed because I already had the data. It became easier to continue.”* This suggests that access to reliable information played a crucial role in reducing emotional strain. However, the stage was dominated by negative

emotions. Confusion and disinterest occurred when EFL freshmen struggled with both the cognitive demands of argumentative writing and their motivational engagement with the task. PM3 stated, *"I still felt a bit confused at the beginning of the writing. So, I asked PM2 again about how to develop the paragraphs. For this argumentative essay, I think most of the ideas came from PM2. I contributed to the final part, like writing two paragraphs, including the conclusion. I also used ChatGPT to search for more details, just to make the writing clearer."* Similarly, PF1 emphasized the confusion due to too many reading sources, as stated, *"I feel confused when I read many sources."* Less engagement with the argumentative essay has led the freshmen to experience disinterest. PM2 stated, *"Writing with PM3 was okay since we were already close friends. The communication was smooth. But unlike narrative, I didn't feel excited. It was more like, 'just finish it.' I wrote the introduction and body, while PM3 handled other parts. The focus was on completing, not enjoying"*.

The feeling of disappointment occurred when collaboration was perceived as unequal, with one partner contributing little to the writing process. As expressed in the excerpt, PF2 stated, *"I was annoyed because my partner didn't help. She just agreed with my ideas, no opinions of her own. I used my ideas and supported them with data from the UTBK 2025 news. I also relied on ChatGPT to check grammar and improve sentences."* In addition, EFL freshmen also experienced overwhelm that occurs when facing the complexity of generating ideas from multiple sources. PM1 stated, *"I feel so overwhelmed right now. There's just too much reading involved, articles, data, statistics, and honestly, this part really drains me. I'm trying to focus, but I keep getting distracted because I'm not enjoying this process at all. I know it's important for the argument, but I just wish it didn't take so much research"*. Lastly, the feeling of stress occurred when the responsibility for completing the writing task was perceived as unevenly distributed within the group. PF2 stated, *"I ended up doing most of the writing alone. It was stressful."*

These findings suggest that the execution stage is a critical point of emotional strain, shaped by both the cognitive demands of argumentative writing and the social dynamics of collaboration. To support freshmen effectively, instructional interventions should provide scaffolding in argument structuring and source management, while also fostering equitable participation in group work.

Evaluation Stage

The data revealed that EFL freshmen experienced a range of both positive and negative emotions during the evaluation stage of AI-supported collaborative argumentative essay

writing. Positive emotions such as happiness, pride, and relief emerged when students felt their ideas were clearly communicated, evidence was effectively integrated, and the assignment was completed. Conversely, negative emotions like anxiety, overwhelm, discomfort, nervousness, and worry arose from tight deadlines and self-doubt. The summary was presented in Figure 3.

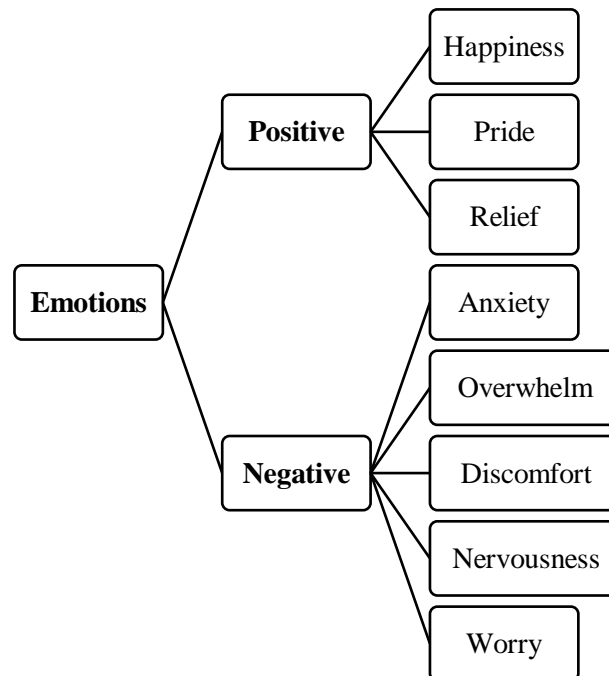


Figure 3. Emotions in the Evaluation Stage of AI-supported Collaborative Argumentative Essay Writing

Note. Figure 3 shows EFL freshmen’s emotions in the evaluation stage of AI-supported collaborative argumentative essay writing. Own work.

The evaluation stage is the final stage of completing an argumentative essay. The EFL freshmen have completed the essay and submitted it to their lecturer for assessment. Both positive and negative emotions were revealed. EFL freshmen experienced positive emotions such as happiness, pride, and relief. The happy and proud feeling occurred when they successfully articulated their arguments, integrated evidence effectively, and felt that their efforts were recognized. PM1 shared, *“I was happy when I submitted my essay. Even though it was challenging, I felt accomplished for completing it on time”*. The feeling of relief occurred when freshmen completed all the requirements and could let go of the stress associated with the task. PF1 shares, *“I felt relieved, Miss, because I was finally done with the assignment. It was completed, and I no longer had it on my mind as a burden.”*

EFL freshmen dominantly experienced negative emotions in this stage. They felt anxiety and overwhelm due to time constraints and self-doubt. PF3 shared, *“I felt anxious*

and overwhelmed because we had very limited time to finish the essay. The pressure of rushing from one class to another and meeting the deadline made the situation stressful.” Besides, a freshman experienced discomfort due to perceived inadequacies in their own work. PM3 shared, “I felt uncomfortable, Miss. The evaluation is a bit lacking, Miss.” Lastly, EFL Freshmen also experienced nervousness and worry due to the pressure of heightened self-consciousness and overthinking. PF2 explained, “When submitting, I felt nervous and worried. I kept thinking: is my essay correct or not? The nervousness wasn’t because of my partner. It was all from me. That made me overthink mistakes. My partner didn’t contribute much, but I didn’t blame her. I focused on my own work.”. This shows that even after completing the essay, the evaluation stage can trigger internalized stress and self-doubt, emphasizing the emotional complexity of finalizing academic work.

EFL Freshmen's Emotion Regulation Strategies in AI-supported Collaborative Argumentative Essay Writing

This section highlights the emotion regulation strategies employed to regulate negative emotions. The findings revealed that EFL freshmen employed three main categories of emotion regulation strategies, namely attention deployment, cognitive changes, and response modulation. The detailed strategies are presented in the following figure.

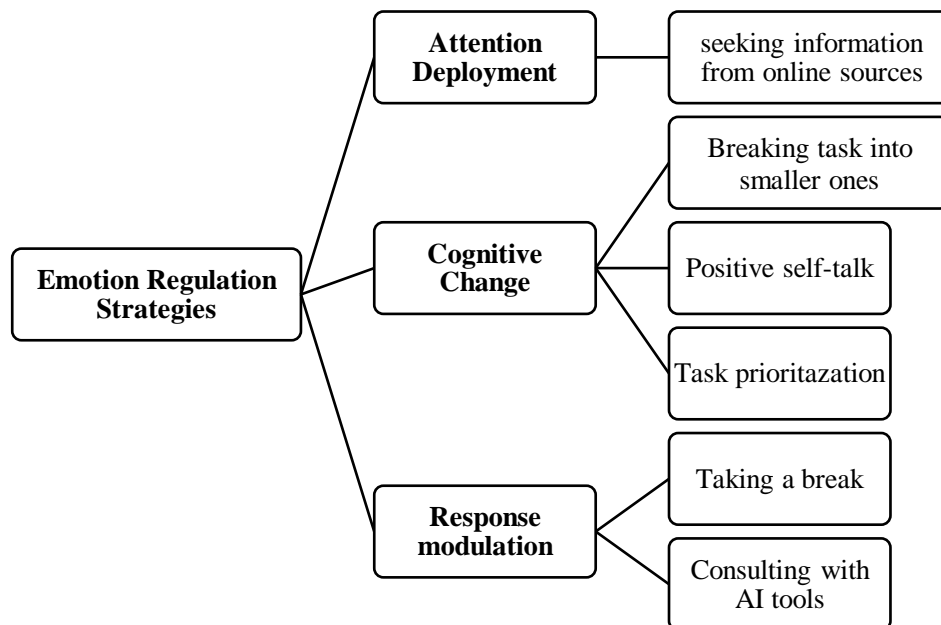


Figure 4. Emotion Regulation Strategies in AI-supported Collaborative Argumentative Essay Writing

Note. Figure 4 shows how EFL Freshmen regulate their emotions in AI-supported collaborative argumentative essay writing. Own work.

As illustrated in Figure 4, EFL freshmen employed various regulation strategies. Within the category of attention deployment, students sought to redirect their focus and alleviate negative emotions by obtaining information from online sources. One student, for instance, reported using *YouTube* as a form of background distraction to reduce discomfort while writing. As PM1 explained, *“I usually watch YouTube to accompany me while writing an argumentative essay, so it will not be that quiet.”* On the other hand, another student employed a different attention deployment strategy by attempting to reduce confusion through consulting multiple sources. PM3 initially reread the lecturer’s slides to review the structure of the material. However, this strategy was ineffective, as it increased rather than reduced confusion. To cope with this, PM3 turned to online resources, including websites, social media, and videos, to explore diverse perspectives on interfaith marriage as their argumentative topics. PM3 shared, *“To reduce my confusion, I tried to reread the PPT slides from my lecturer, looking at the structure again. But it didn’t really help; I became even more confused. Then I tried browsing websites and social media, watching videos about people’s perspectives on interfaith marriage.”* These strategies show that students used attention deployment both to distract themselves and to find clarity when confused. By turning to platforms like *YouTube*, websites, and social media, they shifted focus from negative feelings while also gaining new perspectives. In this way, attention deployment helped make the writing process more comfortable and supported their understanding.

In terms of cognitive change, EFL freshmen employed one strategy that involved breaking tasks into smaller ones. Dividing the process into parts, such as reading one article at a time, helped to reduce feelings of overload and maintain focus. As PM1 described, *“I tried to break the task into smaller steps, like reading one article at a time instead of trying to tackle everything at once”*. Other students engaged in positive self-talk to regulate their emotions and build confidence. For instance, PF1 emphasized the importance of belief in oneself, noting that self-doubt created additional problems as shared, *“By minds. If I believe in myself, then I can do it. If I doubt myself, then there is a problem that needs to be solved”*, while PF2 reported using encouraging thoughts to remain motivated and continue searching for ideas despite ongoing confusion as shared *“I just tried to keep thinking positively, Miss. I kept looking for ideas, even though I was still confused.”* Additionally, students adopted task prioritization as a way to manage both time and emotional stress. PF3, for example, highlighted the importance of focusing on the most essential parts of the essay, working efficiently, and reminding oneself that excessive stress would only hinder progress, as explained *“I prioritized the most important parts of the essay and worked quickly but*

carefully. I also reminded myself that stressing too much would only slow me down.” These strategies illustrate how cognitive change allowed students to reframe challenges, maintain motivation, and sustain productivity when dealing with complex argumentative writing tasks.

In terms of response modulation, EFL freshmen utilized several strategies aiming at managing their emotions once they had already arisen. Some students attempted to calm themselves by taking breaks and allowing time for relaxation. For instance, PF2 explained that she tried to remain calm by resting her mind and briefly setting the task aside to avoid becoming overwhelmed. PF2 shared, *“At first, I tried to stay calm. I thought calmly, let my mind rest so it wouldn't be all over the place. I set the task aside for a while, then tried to relax.”*. Meanwhile, PM1 noted that when working late at night, he and his peer chose to pause and continue the task later as a way to regain balance. PM1 explained, *“At that time, Miss, since I was working on it at night during my credit hours, we decided to take a step back. We just said, 'Okay, let's pause for now and continue later.”* Beyond relaxation, students also turned to external support through AI tools as a means of regulating their stress and confusion. PM2, for example, used *ChatGPT* to generate an outline when feeling stuck, as shared, *“Still, I had to use ChatGPT to help develop the outline because I felt stuck.”* while PF2 relied on it to check grammar and refine sentence structures, as shared, *“I also relied on ChatGPT to check grammar and improve sentences.”*. Similarly, PM1 employed both *ChatGPT* and *Perplexity* to collect relevant data for their essay, as shared, *“I used ChatGPT and Perplexity to help gather the data, Miss.”*. PF1 also acknowledged frequent difficulties in structuring arguments and starting the discussion. To address this, she consulted *ChatGPT* for ideas and guidance, which helped clarify their thinking and organize content more effectively, though they consciously avoided over-reliance on the tool. PF1 explained, *“I still found the argumentative essay more challenging. I often felt confused about how to start and structure my arguments. So, I used ChatGPT for support, mainly to ask for ideas about how to open the discussion or develop certain points. It helped me clarify and organize my thoughts, but I made sure not to rely too heavily on it.”* As a whole, these strategies illustrate how response modulation among EFL freshmen involved both self-soothing behaviors and instrumental support from digital tools, enabling them to reduce immediate stress and continue progressing in their argumentative writing tasks.

Discussion

The findings related to EFL freshmen's emotions in AI-supported collaborative argumentative essay writing suggest that they encountered a variety of emotions that

fluctuated across the three stages of the writing process: planning, execution, and evaluation. In the planning stage, EFL freshmen primarily reported negative emotions, such as anxiety, worry, fear, confusion, nervousness, and overwhelm. These emotions were largely tied to the cognitive demands of generating ideas, selecting suitable topics, and finding credible evidence, as well as the social demands of working with peers. When juxtaposed with the findings of [Santi and Irawati \(2023\)](#) and [Xiao et al. \(2024\)](#), this study confirms the persistence of writing anxiety among EFL freshmen. Similar to [Saputra and Elfi \(2023\)](#), who reported that cognitive anxiety was the most dominant form of anxiety in argumentative essay writing, the freshmen in this study expressed concerns about their ability to produce valid arguments supported by evidence. Likewise, the fear of making mistakes and of negative judgment, as reported by [Sabti et al. \(2024\)](#) in the Iraqi EFL context, was also evident when participants hesitated to express ideas in front of senior peers due to worries about appearing selfish or dominant.

In addition, confusion and nervousness were evident in the planning stage, particularly when students were confronted with the structural and conceptual complexity of argumentative writing. This finding aligns with [Ananda et al. \(2024\)](#), who revealed that Indonesian EFL students struggled to formulate thesis statements, generate arguments, and integrate evidence effectively. Similarly, [Purnama \(2021\)](#) noted that difficulties in argumentative writing stem not only from language-related issues but also from conceptual understanding, such as determining a stance or differentiating between argumentative and expressive forms of writing. The present study confirms these challenges, as PM3 admitted feeling “dizzy” when tasked with incorporating data, evidence, and clear stances, reflecting both limited prior exposure and cognitive overload.

During the execution stage, EFL freshmen reported a mix of both positive and negative emotions. A sense of relaxation occurred once sufficient data had been collected, suggesting that access to credible information reduced uncertainty and emotional strain. This echoes the findings of [Ananda et al. \(2024\)](#), who emphasized the importance of scaffolding in helping students gain confidence during the drafting phase. However, the execution stage was dominated by negative emotions such as confusion, disinterest, disappointment, overwhelm, and stress. Confusion emerged from challenges in organizing paragraphs and handling numerous reading sources, consistent with [Wu and Halim \(2024\)](#), who reported that gaps in competence and task complexity often generate emotional strain in EFL writing. This study revealed a disinterest, especially when students viewed narrative writing as more engaging than argumentative writing. This finding is in line with [Saputra et al. \(2021\)](#), who identified

low motivation and fear of failure as obstacles in EFL argumentative writing, as motivation has a significant role in students' writing performance (Mogesse et al., 2025). Moreover, disappointment and stress were often linked to unequal contributions in collaborative writing. PF2 reported frustration when her peer contributed minimally, forcing her to take greater responsibility for completing the essay. This aligns with Sabti et al. (2024), who highlighted that social dynamics, such as unequal task distribution, heighten writing anxiety. Interestingly, although PM1 made use of AI tools to refine grammar and ideas, these tools were not sufficient to alleviate negative emotions when peer collaboration was perceived as imbalanced. This suggests that while AI can support linguistic aspects of writing, it cannot replace the motivational and social support needed in collaborative tasks (Xiao et al., 2024).

In the evaluation stage, both positive and negative emotions emerged. On the positive side, EFL freshmen experienced happiness, pride, and relief when they successfully articulated arguments, integrated evidence, and completed the assignment on time. These emotions reflect the satisfaction of achievement and align with Ananda et al. (2024), who observed that structured writing instruction enhances students' sense of accomplishment. Relief also suggests that students valued completing the cognitively and socially demanding task, as the burden of deadlines and expectations was lifted. On the negative side, however, emotions such as anxiety, nervousness, worry, discomfort, and overwhelm persisted. These feelings were tied to tight deadlines and self-doubt. Similar findings were reported by Krysz et al. (2020), who noted that even after completion, students often experience residual stress due to overthinking and self-consciousness about their performance.

Findings related to EFL freshmen's emotion regulation strategies during collaborative argumentative essay writing revealed strategies that align with Gross's (2015) process model of emotion regulation, particularly in the categories of attention deployment, cognitive change, and response modulation. Furthermore, he confirmed that attention deployment involves redirecting focus to manage emotions, often through distraction, which reduces distress by shifting attention from negative to positive stimuli. Cognitive change modifies how a situation is interpreted, with reappraisal being a common strategy that reshapes its meaning or relevance. Response modulation involves directly influencing emotional reactions after they arise by altering physiological, behavioral, or sensory aspects. Previous studies have shown that learners often regulate their academic emotions by shifting their focus or seeking clarity when faced with confusion (Heydarnejad et al., 2022). Our findings added distinction to this understanding by showing how students use attention deployment in different ways, such as getting information from online sources, including watching *YouTube*,

accessing websites, social media, and videos to ease discomfort. This role of attention deployment demonstrates the flexible ways students manage both emotional strain and cognitive challenges in writing tasks.

The strategies of cognitive change observed in this study also align with prior findings. [Warrick \(2021\)](#) emphasized that breaking down tasks and using digital supports helps EFL students reduce cognitive overload and maintain focus. Similarly, [Shao \(2025\)](#) found that belief in one's ability and effective use of learning tools can enhance confidence, thereby reducing the impact of self-doubt on performance. Response modulation further highlights the interplay between self-soothing behaviors and external support systems. Traditional strategies, such as taking breaks and pausing to regain calm, were consistent with earlier studies of academic emotion regulation ([Heydarnejad et al., 2022](#)). However, our findings also point to an emerging dimension: the use of AI tools as instruments of emotional regulation. Recent studies highlight that *ChatGPT* and similar chatbots not only reduce writing anxiety by providing feedback, generating ideas, and improving writing organization ([Rezai et al., 2024](#); [Slamet & Basthomi, 2025](#)) but also serve as adaptable cognitive tools that support key learning theories to enhance students' confidence and academic achievement ([Werdiningsih et al., 2024](#)). Participants in our study mirrored these practices by consulting *ChatGPT* and *Perplexity* when feeling stuck, using them to generate outlines, refine grammar, and clarify arguments. Importantly, students also demonstrated awareness of potential over-reliance, suggesting a conscious balance between external support and independent effort.

Conclusion, Implication, Limitation, and Suggestion for Future Study

This study has investigated the EFL freshmen's emotions and emotion regulation strategies during AI-supported collaborative argumentative essay writing. The findings showed that students experienced both positive and negative emotions throughout the planning, execution, and evaluation stages, with negative emotions such as anxiety, confusion, overwhelm, and stress being dominant. These emotions were closely tied to the cognitive demands of argumentative writing, such as topic selection, evidence integration, and revision, as well as to social factors, including peer collaboration, unequal contribution, and fear of negative judgment. While AI tools provided meaningful support in terms of linguistic accuracy and organization, they could not fully alleviate deeper emotional and motivational challenges. This highlights that technology should serve as a supplement rather than a substitute for instructional and emotional scaffolding.

The study also revealed that EFL freshmen employed emotion regulation strategies, including attention deployment by redirecting their focus through seeking information from online sources; cognitive change by reframing difficulties to maintain motivation through breaking tasks into smaller ones, making positive self-talk, and prioritizing tasks; and response modulation by managing their arising emotions through taking a break and consulting with AI tools. These strategies demonstrate that while learners are resourceful in coping with challenges, explicit pedagogical support is necessary to strengthen their ability to regulate emotions effectively in academic writing contexts. Overall, the findings emphasize that supporting EFL freshmen requires attention not only to cognitive skill development but also to emotional well-being. Instructors should scaffold argument structuring, source management, and collaboration strategies while promoting equitable participation in group work. Furthermore, integrating reflective practices and constructive feedback can help students regulate their emotions, build confidence, and engage more positively with argumentative writing.

While this study offers valuable insights, it has limitations. Conducted with a relatively small sample of EFL freshmen from a single institution, the study may limit the generalizability of the findings to broader contexts. Data were primarily collected through self-reported journals and interviews, which may be subject to response bias. The study focused only on short-term emotional experiences during one course, without tracking long-term emotional and cognitive development. Future studies could examine the long-term effects of AI integration on students' emotional regulation and writing development, compare novice and advanced EFL writers to understand how regulation strategies evolve, and explore cultural influences on emotional responses.

Acknowledgement

The authors would like to extend their sincere gratitude to the Indonesian Education Scholarship (BPI), the Center for Higher Education Funding and Assessment (PPAPT), and the Indonesian Endowment Fund for Education (LPDP) for their invaluable support and generous funding. The authors also wish to express their sincere appreciation to the State University of Malang and Universitas Teknokrat Indonesia for their continuous support. Finally, heartfelt thanks are extended to all participants for their active involvement and valuable contributions throughout the research process.

Declaration of Conflicting Interests: The authors have no competing interests to declare.

Funding details: The study is funded by the Center for Higher Education Funding and Assessment (PPAPT) and the Indonesian Endowment Fund for Education (LPDP), the Republic of Indonesia.

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Instruments

Guided questions used in reflective journals and in-depth interviews

Planning stage:

1. What emotions do you experience before starting to write an argumentative essay?
2. Tell me in what condition do you feel positive emotions/negative emotions?
3. Do AI tools help you with your group discussion in outlining your argumentative essay?
(explain and mention the tools you use)
4. What strategies do you use to regulate your negative emotions?

Execution Stage:

1. What emotions do you experience during drafting your argumentative essay?
2. Tell me in what condition do you feel positive emotions/negative emotions?
3. Do AI tools help you with your group discussion in drafting your argumentative essay?
(explain and mention the tools you use)
4. What strategies do you use to regulate your negative emotions?

Evaluation Stage:

1. What emotions/feelings do you experience in revising and finalizing your argumentative essay?
2. Tell me in what condition you feel positive emotions/negative emotions in revising and finalizing your essay!
3. Do AI tools help you with your group discussion in revising and finalizing your argumentative essay? (explain and mention the tools you use)
4. What strategies do you use to regulate your negative emotions?

