Dedeh Rohayati

TRADITIONAL WRITING AND E-WRITING USING GEN-AI TO EMPOWER STUDENTS' CRITICAL THINKING IN ARGUMENTA...

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TRADITIONAL WRITING AND E-WRITING USING GEN-AI TO EMPOWER STUDENTS' CRITICAL THINKING IN ARGUMENTATIVE TEXT

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Abstract
The emergence of Generative AI (Artificial Intelligence) has become something daunting for it is potentially impede the development of students' cognitive skill, mainly, critical thinking skill. This might occur if students have less frequent of traditional writing process to train students' memory and retention. Model of academic writing activity preceded by traditional writing, followed by e-writing with the assistance of Generative AI is worth conducting. With the utilization of case study, the present study explores the procedure of and the students' experiences in traditional writing and e-writing using Gen-AI assistance to empower students' critical thinking in argumentative text. The 24 third year students enrolling Academic Writing Class in English Education Program were selected purposively. Nine students' argumentative documents text, and semi-structured interview administered to nine students were utilized to obtain the primary data. The findings show that the model of writing argumentative test traditionally followed by e-writing argumentative text using Gen AI results in a powerful students' critical thinking in writing argumentative. Generative AI has assisted students to include critical thinking elements in writing argumentative with more reliable and precise in delivering thesis statement, clear fact and data, reasonable and logical argument. Whereas, students experienced the model of writing positively, students' awareness of traditional writing, e-writing, Gen-AI use, argumentative text, and critical thinking notion. Future research is recommended to broaden the present research and to investigate a more comprehensive research result on related topic by using interview questions category of feeling, contrast and construct forming.
Keywords: *argumentative text; artificial intelligence; e-writing; critical thinking; traditional writing*

INTRODUCTION

Writing, as one of language skill element that should be skilled at by students, requires comprehensive thought (Galbraith & Baaijen, 2018; Naveed et al., 2025) since the sentence arrangement have to be written down in a structured, organized, and clearly way (Gerald & Joseph, 2024). It is also must be delivered in analytically way by using grammar, vocabulary, spelling, and sentence structure, as stated in Anderson et al., (2023), Fonkamo & Zeru (2022). In addition, Nawi et al. (2025) argues that to produce structured and certain academic text, undergo comprehensive routine is required. This supported by study conducted by Axrorova (2025) which emphasized that writing requires careful preparation/arrangement, systematic, and proofreading. Thus, writing, as one of productive skill is known as a complex skill involving analytical and systematic structure of thought.

Practically, Nastal and Messer (2025) declare that students needs an extra effort when it comes to writing. The rationale of that issue occurred due to the fact that 1) there is unsynchronization between thought speed and hand-written speed (Limpo & Graham, 2020); 2) it is challenging to structure word by word (Alsalami, 2022; Daud & Firmansyah, 2024; Yassin, 2024) and to fulfil a well and clear statement or sentence; and 3) there is limitation in pouring out the ideas (Saprina et al., 2021). Therefore, the existential of critical thinking is highly required in writing skill (Chaffee & Carlson, 2014; Teng & Yue, 2023; Khairuddin et al., 2024; Leibovitch et al., 2024).

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Critical thinking, as one of the 21st century competences, is someone's ability in elaborate an idea in a deeper way (Pelenkahu et al., 2024), spread to compatible in finding the cause and found out the solutions (Wu, 2021). Moreover, Silva et al. (2025) declare that critical thinking is a multifaceted individual's capability that implicates the observation, controlling, evaluate the effectiveness of one's own thinking strategies in heterogeneous situations, as well as including the element of reasonable (Prayogi et al., 2024) and methodically perspective. Furthermore, Lestari et al. (2025) understand critical thinking as an ability in considering the information, predictable questions (Novia et al., 2024), and also unravel an issue in a logic, innovative and creative way (Walter, 2024). Refers to Blooms Taxonomy, critical thinking consist of six point's cognitive features; remembering, understanding, applying, analysing, evaluating and creating (Krathwohl, 2002; Sudirtha et al., 2022). Based on the elaboration above, the studies highlight that critical thinking is a complex skill that encompass in-depth thought which spread the key-points of identifying, consideration of the matter along with clarity, accuracy and precision decision.

To embody the essential of critical thinking, argumentative writing is the best alternative to facilitate critical thinking in writing (Chaffee & Carlson, 2014; Reichenbach, 2001). Accordingly, It is stated that the persuasive language exemplipied in argumentative text involves thesis statement, argumen, opinion, facts/ data, evidence and reason to demonstarte crititcal thinking in writing (Ibid). As one of genre texts, argumentative writing is a type of text comprising someone's pure logical thought (Kusumo et al., 2025), empowered by an actual and valid data (Akib et al., 2024) to make the idea more reliable and acceptable by society or reader (AlSalem, 2025). Additionally, study conducted by Nurjamin et al. (2025) defines argumentative writing parallel with processing supporting facts, forming perception, and even articulating persuasive language, potentially reform the challenges process of fabricating well-reason essays in English. Uluocak and İpek (2022) reveal that the most pivotal characteristic of argumentation lean on an assured standpoint. Therefore, it could be concluded that writing argumentative is an activity and ability in encompassing a systematic and logical collection of thoughts through non-verbal way.

As far as it was concerned, the mode of writing and its teaching style has changed significantly over the years. The traditional way of teaching writing was delivered through recitation and memorization techniques (Kawinkoonlasate, 2021) leading to a trained memory and retention. Whereas the modern way of doing things involves interactive methods supported by technology utilization. In this era, developing sophisticated writing has been popularized as electronic based writing or e-writing (Rohayati & Friatin, 2021; Rohayati & Rahman, 2023) Its development is expeditious and has a high-tech of updated version (Li et al., 2024; Song & Kim, 2024). One of the presences of technology is AI, hereinafter society was familiar with Generative Artificial Intelligence (Gen-AI). This platform is designed to make human life's more straightforward (Margetis et al., 2021).

The manifestation of Gen-AI contributes in many sectors, especially in education, to specify, in Academic Writing (Kim et al., 2025; Rodafinos, 2025; Yaseenzai et al., 2024; Schiff, 2022; Nartgün & Kennedy, 2024); Tanveer et al., 2020; Dhyani et al., 2024; Alam, 2021). Gen-AI could contribute to the human lives such as daily conversation, responsive partner, as well as a guide to assist multiplex affair, matter or errand, which stated by Wang et al. (2024) and Muthmainnah (2024)), even as a problem solver in a specific way (Valavanidis, 2023). The activity of e-writing involving technology of Gen-AI provision cut the writing duration and contributes to the innovative, creative, and sophisticated written work (Rohayati & Friatin, 2021; Rohayati & Rahman, 2023). This circumstance is due to Gen-AI provision in rapid answer and information to cater user's needs (Yamini et al., 2025) and it's become time-saving (Labadze et al., 2023; Chi et al., 2021); Ait Baha et al., 2024). Moreover, it is beneficial to provide students an assistance to consulate or sharing about their ideas (Hu et al., 2025),

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brainstorming (Scala et al., 2025)), asking many favours in a wide scope, and it could be taken as a mate to discuss with (Yan et al., 2024; Chen et al., 2025; Marrone et al., 2025; Qin & Lin, 2025). This imply significanly that Gen-AI contributes resourcefully in improving university learners English writing (Lee et al., 2024; Kim et al., 2025). Thus, the integration of technology provides satisfying mode for human lives in this century.

The content of Gen-AI, such as ChatGPT, Gemini, and others, provides a valuable reading resources for students to sharpen their critical thinking in writing argumentative. It is to say that writing activity forces students to read many resources in frequently way to reinforce their thought (Napa-Rodríguez, 2025; Khanum & Naryanappa, 2025; Magsalin, 2023). The activity of reading a lot makes students more knowledgeable and has various perspectives that can be expressed in their writing (Hidayat, 2025; Shams, 2024). To sum up, reading a lot, as an initial steps in developing critical thinking, can be reach both in an online or offline resources way as a magnificent supplement for reading comprehensions and writing skill.

Despite a Gen-AI demonstrates its positive impact, yet it still always found out of its cracks. To specify; it makes students stuck in critical thinking (Hassen, 2025) due to the students way too much to rely on Gen-AI (Suryanto et al., 2025; Szmyd & Mitera, 2024; (Scibelli & Stevens, 2024). To overcome those cracks, it is totally required by the academic to utilize the Gen-AI in a wise way (Çela et al., 2024; Sholikhah et al., 2024; Azman & Tümkaya, 2025) when it is used in a classroom atmosphere, especially in a subject of Academic Writing. This is aimed to develop the students' competency in critical thinking (Rohayati & Rachmawati, 2021; Rohayati & Friatin, 2021) so as to create a shining and brightening essay. In that case, a strategy to deal with those issues should be coated by guiding the students in implementing a great prompting (Walter, 2024). To get the exact answer of information by Gen-AI, it is necessary for the user to provide prompting (Oppenheim, 2018; Hutson & Robertson, 2023; Korzynski et al., 2023; Nadeem et al., 2025) in a good way which supported by critical thinking element.

Six prior studies offer a great influence to the recent study which involving Gen-AI in sharpening students' critical thinking in writing argumentative text. Suh et al. (2025) explored utilization of ChatGPT to 1) cultivate critical thinking in L2 argumentative essay writing by ChatGPT Guideline for Critical Argumentative Writing (CGCAW) framework; and 2) to incorporate the Paul-Elder Critical Thinking Model (PECTM) and Tan's framework resulting in clarity, logical coherence, and evidence use both critical thinking and writing proficiency. Secondly, Hong and Guo (2024) reported that Gen-AI contributes and encourages critical thinking meritoriously, to specify; proposals miscellaneous viewpoint, feedback and discussion spur. In their study, Oliveira et al. (2025) introduced the Perceived Critical Thinking Disposition of Generative Artificial Intelligence (PCTD-GAI) in fulfilling six critical thinking dispositions (reasoning, access to justice, search for evidence, and search for truth, open-mindedness, and systematicity).

The other three previous study are El Maamri (2025), (Hong et al., 2025) and Ruiz-Rojas et al. (2024). El Maamri (2025) declared that writing process based argumentation in didactic scripting at specific moments by assimilating Gen-AI, combined with dialogic learner/conversational agent method stimulate for a nimble learning and iterative establishing in cultivate student's proficiency in argumentative and critical thinking. Hong et al. (2025) examined the students' critical thinking in writing English essay with the guidance of Gen-AI. Ruiz-Rojas et al. (2024) highlight the essential of exploring technology (Gen-AI) as a form of students' potential in transform pedagogical practice on critical thinking and collaboration. Non of them reported the combination of traditional writing and e-writing using Gen-AI in composing argumentative text to optimize critical thinking. Unlike the previous studies aforementioned, the current study, specifically, intends to explore 1) the synergy of traditional writing and e-writing using Gen-AI to empower students' critical thinking in writing

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argumentative text; and 2) students' voice on the implemented model of traditional writing and e-writing using Generative AI in constructing argumentative text to empower critical thinking.

METHOD

The present study utilized the qualitative paradigm with the type of case study because it deals with exploring how and why the small case was occurred as suggested by Yin (2018). Mainly, the current study is aimed to explore 1) the implementation of traditional and e-writing using Gen Ai empower students' critical thinking in writing argumentative text; and 2) students' perception of the model. Twenty-seven of third year students of a private university in East Priangan West Java were involved in this study. They were selected purposively because it was based on researchers' own judgment, which is consistent with purposive sampling as a widely used technique in qualitative research. The selected participants were based on specific criteria which was relevant to the research objectives (Ahmad & Wilkins, 2025; Dahal, 2025) .

To obtain the first primary data, participatory-observation was employed to describe model's stages in synergizing traditional and e-writing argumentative assisted by Gen-AI in optimizing students' critical thinking in argumentative text. This data functioned as capturing the real behaviour in natural context to fulfil triangulation and comprehensive exploration. The observation analysis is similar to semi-structured interview in that the result of observation then analysed by employing thematic analysis approach (Braun & Clarke, 2024). Similarly, the 9 document of argumentative text written by students as the second primary data, were also utilized. These contents were analysed by using the persuasive concept reflected in argumentative text as suggested by (Reichenbach, 2001).

The last, semi-structured interviews were employed, as these methods are commonly integrated in qualitative studies to capture rich, contextual, and in-depth data (Lim, 2025). Students' perception on traditional and e-writing argumentative assisted by GEN-AI to empower critical thinking ability were revealed by administering semi-structured interview to 9 students. They are categorized into low, mid, and high-level achievers based on GPA (Grade Point Average) or IPK (*Indeks Prestasi Mahasiswa*). To follow Cohen et al. (2013), the semi-structured interview questions in this study were divided into three categories which aimed at finding out 1) students' experiences; 2) students' opinion; and 3) students' knowledge. The result of interview was analysed using thematic analysis approach (Braun & Clarke, 2024).

RESULTS AND DISCUSSION

The present study is intended to depict synergizing traditional writing and e-writing using Gen-AI to empower students' critical thinking in argumentative text and explore the students' voice on the implemented model. The data were obtained through semi-structured interview, observation, and students' argumentative texts. The result of the analysis data will be delineated in the following organization:

The sequence of traditional and e-writing argumentative essay assisted by Gen-AI to empower students' critical thinking

The synergy of traditional and e-writing argumentative text assisted by Gen-AI to empower students' critical thinking comprises five variables which might enrich students' experiences in learning to write without weakening cognitive skill. In the present research, students enrolled Academic Writing lecture were given a new developing model of writing, mainly focusing on traditional and e-writing argumentative text assisted by Gen-AI. The students' work became a primary data which gained through participatory observation. These documents were collected through three steps:

First, students are asked to write the essays traditionally with the topics of conservations issues reflecting their critical thinking skill in a confined time (60 minutes). This activity is

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ultimate to maintain students' memory retention (Marano et al., 2025). This result in circumstance at which the students' produce their genuine idea without any interference, and how high their cognitive ability in knowing the world. Their broad knowledge was forced to be issued by memorizing all events and insight they had previously. This corresponds to what is said by (Brown, 2000) in that, in principle of teaching writing, students' previous knowledge must be taken into consideration. However, challenges emerged during the session because it was found that students found traditional writing tiring. Despite the fact that some students were moody, traditional writing was still considered as the most important stages in e-writing (Ekmekçi, 2018). Moreover, based on the result of semi-structured interview, some students found traditional writing is irreplaceable.

Second, the essay then was transferred, digitalized, and filed in a Microsoft word document. After transferring into digital form, the documents of argumentative text, obviously, have not been perfect yet in term of spelling and typography. This is caused by the students' less frequent of writing by using pen and paper as revealed in students' semi-structured interview. Nevertheless, "traditional writing elicited syntactically more complex writing" (Y. Kim & Belcher, 2020) which made the readers and the writers themselves ambiguous. The digitalization is beneficial for essay to be a long-term accessible material or to be "digital preservation" (Rastogi et al., 2024). At the digitalization stage, students found a new insight regarding the digital literacy competence, i.e. knowing new assistance in transferring the traditional written text into digital one using mobile google lens, for example.

Third, students are asked to revised and edited their work assisted by Gen-AI they preferred, such as Chat GPT, Gemini, Meta AI, etc. This is the last process of e-writing assisted by Gen-AI at which the writer does not have self-revision and editing; instead, Gen-AI acts as a virtual assistant that provides support at every stage of the writing process (Reis & Melão, 2023). This stage boosts the students' powerful critical thinking in argumentative text and concurrently produce the innovative written work (Rohayati & Friatin, 2021). The reason is that, students have successfully added fact and data to support their claim and opinion, exemplified by in-text citation and derived from precious and relevant resources (Table 1). Regarding the publication, students were required to submit their work via Google Classroom. This last process of writing shown that students have been assisted to empower critical thinking in argumentative text (Figure 1) that meet the norm proposed by Reichenbach (2001) on argumentative elements and the higher level of Taxonomy Bloom (Krathwohl, 2002), namely creation.

Students' documents of argumentative text

As previously mentioned, the students' document of argumentative texts was also considered as primary resources data to meet the triangulation. These document texts were analyzed by using Reichenbach' theory (2001) who propose several elements included in an effective argument. The result of students' document indicates student's limitation in producing argumentative text traditionally in confined time resulting in incomplete essay and less powerful critical thinking skill. However, the prompt writing (Figure 1) indicates that student dominantly had awareness of the elements in writing an effective argumentative text. This supports the semi-structured interview data at which mostly students mentioned all elements of critical thinking in writing argumentative (Table 1) as claimed by (Reichenbach, 2001).

After being examined further, it indicates that students' documents of traditional writing argumentative were mostly did not demonstrate thesis statement (all low achievers and 1 mid achiever). This might imply that students were still less ability in developing thesis statement in their opening paragraphs. This is in contrary to the high achievers and 2 mid achievers who include thesis statement clearly stated in their essay. It can be concluded that

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students' critical thinking reflected in argumentative was weakened by their inability in formulating thesis statement and fact/ data.

With regards to facts and data, 3 of 9 students from each achiever could not present fact and data in their essay. This might be caused by their less routine in reading a lot which obviously plays a role as the first stages of cognitive level (Bloom, 1956) indicating critical thinking skill. Accordingly, the stages of critical thinking portraying cognitive level consists of remember, understand, apply, analyze, evaluate, and create (Anderson & Krathwohl, 2001). Individual's critical thinking is commenced by knowledge which can be elicit through reading a lot about world phenomenon (Hidayat, 2025; Shams, 2024). This forces every individual to remember all of the knowledge so that he or she can share information to other both written and orally.

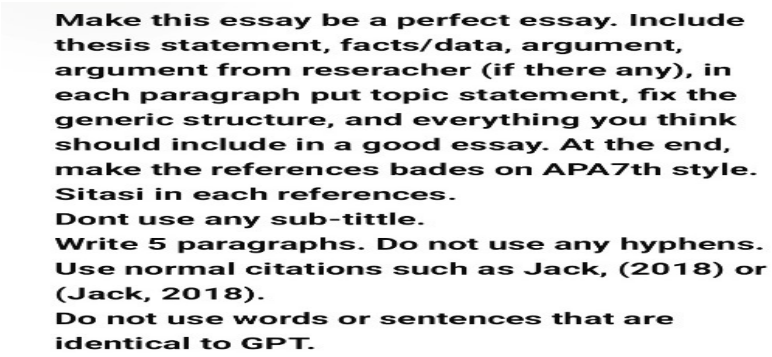


Figure 1 Students' prompt e-writing assisted by AI

It is very fortunate that students' argumentative text was more powerful after being assisted by Gen-AI. The incomplete essay had increased in paragraphs showing effective arguments and reason as required by the teacher in text citation indicating relevant resources and portraying clear and precious facts/ data. It means that the essay structure had enriched by the transition signals leading to the text coherence. Through their prompt writing, it was found that students had awareness of aspects of argumentative text at which it must commit the generic structure, needs the involvement of thesis statement, argument, reason, fact/ data, and opinion. These are also endeavored by students during semi-structured interview; and thus it is in line with Suh et al. (2025) who found that utilization ChatGPT in L2 argumentative essay writing increased in clarity, logical coherence, and evidence involvement.

How do they perceive towards the implemented model?

The present study involved nine students representing low, mid, and high achievers. In investigating students' perceptions towards the implemented model, the semi-structured interview was used which categorized into three major

Table 1 Analysis of critical thinking elements in students' argumentative text

Students' essay	Before					After				
	Issue/ Thesis statement	Argument	Reason	Facts/ Data	Opinion	Issue/ Thesis statement	Argument	Reason	Facts/ Data	Opinion
Essay 1	-	√	√	-	√	√	√	√	√	√
Essay 2	-	√	√	√	√	√	√	√	√	√
Essay 3	-	√	√	√	√	√	√	√	√	√
Essay 4	√	√	√	√	√	√	√	√	√	√
Essay 5	-	√	√	-	√	√	√	√	√	√
Essay 6	-	√	√	√	√	√	√	√	√	√
Essay 7	√	√	√	√	√	√	√	√	√	√

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Essay 8	√	√	√	-	√	√	√	√	√	√
Essay 9	√	√	√	√	√	√	√	√	√	√

It is very fortunate that students' argumentative text was more powerful after being assisted by Gen-AI. The incomplete essay had increased in paragraphs showing effective arguments and reason as required by the teacher; in text citation indicating relevant resources portray clear and precious facts/ data; the essay structure had enriched by the transition signals leading to the text coherence. Through their prompt writing, it was found that students had awareness of aspects of argumentative text at which it must commit the generic structure, needs the involvement of thesis statement, argument, reason, fact/ data, and opinion. These are also endeavored by students during semi-structured interview. These findings are in line with Suh et al. (2025) who found that utilization ChatGPT in L2 argumentative essay writing increased in clarity, logical coherence, and evidence involvement.

How do they perceive towards the implemented model?

It has been explained previously that nine students were involved in the current study representing low, mid, and high achievers. In investigating students' perceptions towards the implemented model, the semi-structured interview was used which categorized into three major themes: experience, opinion and knowledge. These themes demonstrate students' meaning-making in real and natural setting towards the model implemented in the learning process, how they viewed the implementation of traditional writing and e-writing argumentative using AI-assisted writing, and how they aware of traditional writing and e-writing assisted by AI, and the relationship between argumentative writing and critical thinking. Mostly, students perceive the implemented model positively because they have a new insightful experience, opinion, and knowledge in digital literacy, argumentation, traditional and e-writing, and critical thinking.

> "Through this model, traditional writing plays a role as barnstorming that can tighten memory; meanwhile, e-writing create an innovative work and provide a new insight about digitalization easily. At the digital stage, the mechanic aspect and the structure of text is polished using AI; consequently, the writer must be accustomed to write a reliable and effective prompt writing to direct AI (High Achiever) … This model has improved my writing in the aspect of sentences, ideas, and references due to teacher's model and AI assistance. Traditional writing trained my basic skills and memory, while AI assisted students in producing effective writing. E-writing using AI is effective, practical, easy to edit, and useful for adding references (Mid Achiever)
> ... Traditional writing trained our handwriting and helped ideas stay longer in our brains. We also used Google Lens and AI to check our writing and think more deeply (Low Achiever).
>
> **(1st Interview Transcription of May 13th 2026)**

To dig out the students' **experience (1st Interview Transcription of May 6th 2026)** toward the implementation of the model, the question was formulated as follows: "Could you describe your experience in the Academic Writing course using an AI-assisted e-writing model integrated with traditional writing in composing argumentative texts to strengthen critical thinking skills?" The result of students' interview reported that the combination of traditional writing and AI-assisted e-writing created a balanced learning environment. All participants emphasized that traditional writing trained them to think, recall ideas and organize arguments independently, and stimulate memory retention (Kawinkoonlasate, 2021).

They also perceived the model give significant benefit because e-writing using Gen-AI tools assisted them in improving vocabulary, grammar, mechanics, sentence structure, and idea development. In addition, Gen-AI accelerated the writing process by 1) providing references, brainstorming support, and feedback for argumentative essays; and 2) generating broader perspectives and references. While another explained that AI-assisted writing made the text

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more practical, organized, and innovative. One student from high achievers noted that the result of AI can work maximally when the writer can produce an effective prompt writing.

Regarding the **opinion** depicted in **2nd Interview Transcription of 13th May 2026,** the interview question is delivered in the following formula: "What is your opinion about the Gen-AI-assisted e-writing model integrated with traditional writing in composing argumentative texts for strengthening critical thinking skills?". Generally, students expressed positive attitudes toward the synergy of traditional writing and e-writing supported by Gen-AI. They believed that the model was relevant to contemporary educational contexts because it combined conventional literacy practices, namely traditional writing and e-writing with modern technology. High achiever said that "*The model would be appropriate for Ge-Z because of AI involvement.* "; followed by mid achiever who uttered that *"Both traditional and electronic writing using AI are beneficial* "; and the last is from low achiever who claimed that, "*The model was pretty good* (**2nd Interview Transcription of 13th May 2026**). This implied that 1) maintaining traditional writing practices in the digital era is still important; 2) despite the practicality of e-writing, traditional writing should remain part of academic learning because it trained cognitive endurance, creativity, and independent idea construction. This suggests that students did not perceive technology as a reliable tool; instead, they viewed both modes of writing as complementary components that should work synergistically.

In term of **knowledge** (3rd **Interview Transcription of 13th May 2026**), students demonstrated a relatively comprehensive understanding of argumentative writing and critical thinking through the question of "what elements or aspects are important in argumentative writing and critical thinking skills?" Regarding argumentative writing, participants identified several important elements, including thesis statements, supporting claims, evidence, facts, data, logical reasoning, counter arguments, rebuttals, and conclusions. They emphasized that argumentative texts should present clear positions supported by reliable evidence and coherent reasoning (Reichenbach, 2001a). Some students also mentioned the importance of contextual understanding, topic familiarity, and audience awareness in constructing persuasive arguments. The students' responses additionally reflected their awareness of critical thinking components. They aware of being effective critical thinkers by mentioning logical analysis, evaluation, problem-solving, and evidence-based reasoning. While open-mindedness was also sounded by the students which refers to critical thinking disposition. In detail, students emphasized that individuals should not accept information from Gen-AI blindly but should verify sources, compare perspectives, and analyse arguments critically. This understanding aligns with the principles of higher-order thinking skills in Bloom Taxonomy where students are expected to synthesize information and construct reasoned arguments in academic writing.

> "...the important aspect of writing argumentative is generic structure, mainly thesis statement and series of arguments. With regards to critical thinking, knowledge of the topic is important because the writer needs to understand the theme, create a thesis statement, support it with arguments, and make a conclusion which have to be elaborated in a more logical way (High Achiever)
> ...argumentative writing should include facts, data, evidence, and opinions to avoid ambiguous ideas... understanding the importance of having a clear topic and thesis statement is pivotal.... critical thinking is practiced through thinking logically such as evaluation and analysis. The activities also helped students develop ideas, arguments, opinions, and supporting claims, while expanding our knowledge and insights of argumentative and critical thinking during the writing process (Mid Achiever)
> ...argumentative writing should contain opinions, data, and clear reasons to support the ideas. Element of critical thinking includes .... argumentative text needs an opening paragraph with a thesis statement, promise to the reader, counter argument, rebuttal, and conclusion ...one of the critical thinking standards is clarity and precious. Being open-minded is open-minded and cross-check information instead of accepting it directly is critical thinking disposition (Low Achiever)
>
> (3rd **Interview Transcription of 13th May 2026**).

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Interestingly, students also demonstrated knowledge about ethical of Gen-AI utilization. Most participants understood that AI-generated information might contain inaccuracies or biases. Therefore, they stressed the importance of cross-checking references, revising Gen-AI outputs, and maintaining personal authorship in writing as a wise way in managing Gen-AI (Çela et al., 2024; Sholikhah et al., 2024; Azman & Tümkaya, 2025). Some students explained that effective Gen-AI usage requires prior knowledge because users need sufficient understanding to formulate appropriate prompts and evaluate generated responses critically. This indicates that students recognized Gen-AI literacy as an essential component of contemporary academic writing competence.

Another important finding concerns the relationship between Gen-AI and critical thinking. Students believed that Gen-AI could either support or weaken critical thinking depending on how it was used. When students depended excessively on Gen-AI, they perceived a risk of intellectual passivity and reduced analytical engagement. Conversely, when Gen-AI was used selectively for brainstorming, feedback, or idea exploration, students considered it beneficial for enhancing critical reflection and expanding perspectives. This dual perception suggests that students possessed a nuanced understanding of Gen-AI integration in education, especially in Academic Writing process.

CONCLUSION

The combination of traditional writing and e-writing using Gen-AI to empower critical thinking in argumentative text provides the students various fruitful insights. Based on participatory observation, the result show that students are equipped by five variables, i.e., in experiencing traditional writing, e-writing, Gen-AI, argumentative structure, and critical thinking understanding. This model might become bridge for students to be an individual who can compete in the global world and think logically. The documents of argumentative text portray students' awareness of argumentative as a media to facilitate critical thinking in writing. The traditional writing result was supplemented by e-writing assisted by Gen-AI to be a complete and effective argumentative text. Thus, students' critical thinking in writing argumentative text sound effective and powerful.

Meanwhile, semi-structure interview comprising three major themes digging out students' experience, opinion, and knowledge towards the implemented model of writing. Their experiences confirm that the model supports writing development, promotes efficiency, and enhances critical engagement with information. Their opinions express positive acceptance of technological integration while simultaneously emphasizing the beneficial value of ethical and balanced Gen-AI utilization. Meanwhile, their knowledge demonstrates awareness of argumentative writing structures, elements of critical thinking, and the use of Gen-AI literacy practices wisely. Overall, the findings demonstrate that students perceived the integration of traditional writing, e-writing, and Gen-AI as a constructive and meaningful learning model for argumentative academic writing.

The present study suggests that synergizing traditional writing and e-writing assisted by Gen-AI become an effective pedagogical strategy to empower students' critical thinking in academic argumentative writing contexts. These findings have been successfully answered the two research questions through multiple data resources resulting in triangulated data. Apart from its features, the current study weakened by the category of questions during interview which only focuses on experience, opinion, and knowledge. The future research is recommended to broaden comprehensive insight through category of interview question such as students' feeling, contrast and construct forming.

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