



# The Use of AI Chatbot (ChatGPT) to Enhance Writing Skills: A Qualitative Content Analysis

**Meilinda Ardiani**

Faculty of English Language and Art, Universitas Persatuan Guru Republik Indonesia Semarang, Indonesia

[ardianimeilinda@gmail.com](mailto:ardianimeilinda@gmail.com)

**Dra. Lusia Maryani Silitonga, M.Pd., Ph.D.**

Faculty of English Language and Art, Universitas Persatuan Guru Republik Indonesia Semarang, Indonesia

[lusiamaryanisilitonga@upgris.ac.id](mailto:lusiamaryanisilitonga@upgris.ac.id)

## ABSTRACT

This study explores the use of AI, especially chatbot ChatGPT, in enhancing undergraduate students' writing skills in a Paragraph Writing course through qualitative content analysis. The research focuses on examining students' written texts before and after the integration of ChatGPT to assess improvements in coherence and cohesion, grammar accuracy, vocabulary development, sentence structure, and idea development. Data were collected from students' written assignments and reflective notes. The results indicate that the use of ChatGPT facilitated noticeable progress in students' paragraph construction, particularly in coherence and vocabulary use. The chatbot served not only as a language assistant but also as a cognitive partner, enabling students to generate, organize, and refine their ideas more effectively. The study suggests that AI-powered tools, when integrated strategically, can enhance writing performance.

**Keywords:** ChatGPT, writing skill, paragraph construction, writing performance, AI-powered tools.

## 1. Introduction

The advancement of artificial intelligence (AI) has significantly transformed the field of language learning, particularly in the context of writing instruction. Among AI innovations, chatbots like ChatGPT have emerged as powerful tools that provide learners with real-time, interactive, and personalized feedback to support writing development (Silitonga et al., 2023, 2024). Developed by OpenAI, ChatGPT utilizes natural language processing (NLP) and reinforcement learning to generate coherent, contextually relevant responses based on user input (Fryer & Carpenter, 2006; Huang et al., 2022; (Artiana & Fakhurriana, 2024). The effective nature of AI can help learners overcome the difficulty of learning English. Learners can complete tasks more quickly than manually through AI in writing tasks. This capability positions ChatGPT

as a valuable language-learning assistant capable of supplementing traditional writing instruction.

Writing, especially at the paragraph level, requires iterative practice, timely feedback, and structured scaffolding—elements that are not always available in large classroom settings. AI tools can help fill this gap. According to (Ghafar et al., 2023), In a low-stakes environment, AI-powered instructors provide extensive feedback and persistent, individualized instruction, thereby encouraging students to learn from their errors and take risks. (Fryer et al., 2019) further highlight that AI accelerates the skill development process by offering accessible, consistent, and adaptive learning support.

Several studies have shown the effectiveness of AI in supporting EFL learners. (Rosdiana et al., 2024) found that AI-powered writing assistants facilitate various stages of the writing process, including idea generation, translation, paraphrasing, and structural revision. Similarly, Kohnke et al. (2023) and Deng and Lin (2022) emphasized that AI applications can improve the linguistic quality of EFL writing by suggesting context-appropriate vocabulary and grammar corrections. Kim et al. (2019) also noted that such tools enhance learners' ability to convert abstract ideas into well-formed English expressions, thereby improving clarity and coherence.

Despite these promising developments, empirical studies specifically investigating ChatGPT's role in paragraph-level writing improvement—especially through qualitative content analysis—remain limited. Existing research often centers on general writing fluency or technical performance, without closely examining the structural and stylistic changes in learners' written output. This study seeks to fill that gap by analyzing how ChatGPT supports students in improving paragraph writing in an academic setting. By exploring authentic student texts before and after interaction with ChatGPT, this research aims to uncover how the AI tool enhances coherence, grammar, vocabulary use, and overall writing quality.

## **2. Methodology**

### **2.1 Research Design**

This research employed a qualitative content analysis design to investigate the impact of ChatGPT on student writing. Qualitative content analysis is an interpretive research design that is designed to systematically analyze textual data in order to identify patterns, meaning, and themes. It is a reflective, inductive, and iterative process that involves engagement with the data in order to interpret the underlying social phenomena (Muthmainna et al., 2025). The approach enabled a detailed examination of changes in writing quality, structure, and language use over time.

### **2.2 Subject of Research**

The subjects of this research were undergraduate students enrolled in a Paragraph Writing course at Universitas Persatuan Guru Republik Indonesia in Central Java, Indonesia. All students had access to ChatGPT and were encouraged to use it during their writing processes, including drafting, revising, and editing their paragraphs.

### **2.3 Data Collection**

Data consisted of two sets of paragraph assignments submitted before and after the integration of ChatGPT. In addition, students provided short written reflections on how they used the chatbot and perceived its usefulness in supporting their writing.

## 2.4 Data Analysis

Using qualitative content analysis, the students' paragraphs were examined for five main indicators: (1) coherence and cohesion, (2) grammar accuracy, (3) vocabulary development, (4) sentence structure, and (5) idea development. Each indicator was analyzed thematically across pre- and post-ChatGPT samples to identify patterns of improvement. Manual coding and cross-checking among two independent reviewers ensured analytic rigor and credibility.

## 3. Discussion

The analysis revealed noticeable improvements in students' writing, particularly in coherence and vocabulary use. Before using ChatGPT, many paragraphs exhibited abrupt transitions, vague topic sentences, and repetitive word choices. After chatbot integration, students demonstrated clearer paragraph structure, smoother transitions, and more precise vocabulary.

### 3.1 Coherence and Cohesion

With coherence and cohesion, the paragraph text can be well-understood by readers. ChatGPT has the potential to assist students in creating coherent and cohesive texts, due to its capability of generating text automatically (Istihari et al., 2023). Students' post-ChatGPT writing showed a marked enhancement in logical flow. ChatGPT's suggestions helped students clarify topic sentences and develop supporting ideas more systematically. The chatbot's ability to provide examples and transitions was especially valued. Before using ChatGPT, several student paragraphs lacked logical progression. For example:

Pre-ChatGPT sample:

*"Bus Rapid Transit (BRT) Trans Semarang, is one of the public transportation in Semarang. It is used by people who stays in Semarang or near Semarang."*

Post-ChatGPT sample (after revision with chatbot support):

*"Bus Rapid Transit (BRT) Trans Semarang is one of the main public transportation systems in Semarang. It is widely used by residents of Semarang and nearby areas."*

The pre-ChatGPT sample displays disconnected ideas and abrupt phrasing, as well as feeble coherence and cohesion. The connection between sentences is obscure, and the language is repetitive and awkward ("individuals who live in Semarang"). Conversely, the revised version displays enhanced sentence unity and logical flow. The use of phrases such as "a primary public transportation system" and "residents of Semarang and the surrounding areas" simplifies transitions and improves clarity. This suggests that ChatGPT enhances the logical organization (coherence) and the linguistic connection between sentences (cohesion), thereby enhancing the paragraph's readability and cohesion.

### 3.2 Grammar Accuracy

Grammar plays an important role in writing. It is not arguable that students need to understand grammar rules to avoid common mistakes, including tense, pronouns, auxiliary verbs, etc (Bisriyah, 2022). While grammar errors did not disappear entirely, many students made fewer tense-related mistakes and showed improved sentence variety. ChatGPT assisted in correcting fragmented or run-on sentences, contributing to more polished texts. In pre-intervention texts, students often used incorrect tenses or incomplete sentences:

Pre-ChatGPT sample:

*“BRT Trans Semarang has become people choice for its low-cost fares than the other public transportation, such as angkot or taxicab. You can travel around the city without worrying about the budget for accommodation.”*

Post-ChatGPT sample:

*“BRT Trans Semarang has become a popular choice for people due to its lower fares compared to other forms of public transportation, such as angkot or taxicabs. It allows you to travel around the city without worrying about transportation costs.”*

The pre-ChatGPT sample is filled with grammatical errors, including inaccurate phrasing ("budget for accommodation"), defective comparative structure ("low-cost fares than"), and incorrect article use ("people choice"). Each of these errors reduces fluency and clarity. After having a revision with ChatGPT, the grammar shows substantial improvements. The revised version employs precise comparisons ("lower fares compared to..."), clearer sentence structure, and appropriate articles ("a popular choice"). This demonstrates that ChatGPT effectively improves grammatical accuracy, resulting in more precise and academically appropriate writing.

### **3.3 Vocabulary Development**

ChatGPT expanded the lexical range of students' writing. Students were assisted by the tool in substituting overused words with more suitable synonyms and were introduced to academic collocations that were important to the paragraph's subject matter. Many students agreed that ChatGPT enhances their ability to learn and remember new vocabulary, helps them save time, gives them access to extensive knowledge, and offers personalized guidance and feedback—all in one platform (Vita Losi et al., 2024).

Students initially repeated simple or vague words:

Pre-ChatGPT sample:

*“Wayang Kulit is a classic Javanese shadow puppet show. It is known since before the 10th century. Wayang Kulit is famous because its elaborate, orchestrated performances and this ancient from the island of Java in Indonesia.”*

Post-ChatGPT sample:

*“Wayang kulit is a traditional Javanese shadow puppet performance. It has been known since before the 10th century. Wayang kulit is well known for its elaborate and orchestrated performances. This ancient art form originates from the island of Java in Indonesia.”*

The Pre-ChatGPT sample shows a limited vocabulary and an unusual sentence structure, including incomplete phrases ("this ancient from the island of Java") and incorrect verb tenses ("it is known since..."). The language lacks of fluency and clarity. In contrast, the Post-ChatGPT version displays substantial enhancements. It is marked by more precise vocabulary (e.g., "traditional Javanese shadow puppet performance"), correct grammar, and cleaner phrasing ("an ancient art form"). Increased precision, coherence, and lexical richness are the result of these improvements.

### **3.4 Sentence Structure**

In this study, sentence structure refers to the way students compose words and phrases to construct clear sentences grammatically correct, and varied sentences. Students' paragraphs were analyzed to determine whether they use the simple sentence structure or repetitive sentences. By analyzing the sentence structure before and after integrating with the chatbot ChatGPT, this study aims to assess whether ChatGPT could support students in constructing more advanced writing.

Pre-ChatGPT sample:

*“Spicy noodles known as “Mie Gacoan” have gained a lot of popularity lately, among youth. In 2016 Gacoan noodles made her debut. Meanwhile, Solo is home to the company's first branch restaurant, which opened in 2018.”*

Post-ChatGPT sample:

*“Spicy noodles known as ‘Mie Gacoan’ have gained significant popularity lately, particularly among young people. Mie Gacoan made its debut in 2016. The first branch restaurant was opened in Solo in 2018.”*

In the Pre-ChatGPT sample, issues include awkward phrasing, subject-pronoun mismatch, and overly complex constructions. For example, the sentence "made her debut" is grammatically incorrect, and the placement of commas disrupts the flow of the sentence. The structure of the Post-ChatGPT version is more concise and clear, with improved phrasing, correct grammar, and enhanced coherence. This implies that ChatGPT effectively assists the development of sentence structure, thereby improving the accuracy and clarity of written content.

### 3.5 Idea Development

Students may have limited ideas due to their lack of knowledge or lack of mastery in writing skills. In the context of learning English, mastery of the writing skill is important. If students can master this skill, they can express their emotions and share their thoughts with others in writing (Puspita Dewi et al., 2022). ChatGPT prompted students to elaborate on their points.

Pre-ChatGPT sample:

*“The philosophical value of Wayang Kulit is that they symbolize God creatures. Wayang Kulit is a reflection of Javanese culture.”*

Post-ChatGPT sample:

*“Wayang Kulit holds deep philosophical value in Javanese culture. The characters in the performance are believed to symbolize God’s creations, each representing different traits of humanity, such as virtue, greed, wisdom, or ignorance. These symbols reflect the moral and spiritual teachings rooted in Javanese philosophy.”*

The Pre-ChatGPT sample expresses an important concept; however, it lacks of content and detail, providing only general statements without elaboration. On the other hand, the Post-ChatGPT version significantly broadens the concept by clarifying the way in which Wayang Kulit characters symbolize a variety of human characteristics and deliver moral and spiritual teachings. The philosophical significance of the performance is more clearly connected in this enriched explanation, which demonstrates that ChatGPT assists writers in the development of ideas in an improved and coherent way.

The results of this study indicate that the quality of students' paragraph writing was significantly enhanced by the integration of ChatGPT in a variety of areas, including coherence and cohesion, grammar accuracy, vocabulary development, sentence structure, and idea development. Fragmented thoughts, limited vocabulary, grammatical errors, and underdeveloped ideas were all common in students' writing before the implementation of the chatbot. Their texts became more precise and diverse as a result of utilizing ChatGPT. The vocabulary became more precise and diverse, while coherence was enhanced by the use of clearer topic sentences and smoother transitions. Sentence structures showed increased coherence and variety, and grammar errors, particularly those related to tense and word selection, were reduced. Students were able to enhance the substance and context of their writing by expanding their ideas more extensively. This was the most significant benefit.

These enhancements suggest that ChatGPT may be useful as a cognitive tool that facilitates critical thinking in academic writing, in addition to serving as a language corrector.

#### 4. Conclusion

This study highlights the potential of ChatGPT as a pedagogical aid in enhancing students' paragraph writing skills. Through qualitative content analysis, it was evident that students benefited from improved coherence, vocabulary, and sentence structure. The chatbot served not only as a linguistic resource but also as a scaffolding tool that promoted learner autonomy and reflection. Future research should explore the long-term effects of AI-assisted writing and examine its role in collaborative or peer-based writing settings.

#### 5. References

- Artiana, N., & Fakhurriana, R. (2024). EFL Undergraduate Students' Perspective On Using AI-Based ChatGPT In Academic Writing. In *Language and Education Journal* (Vol. 9, Issue 1).
- Bisriyah, M. (2022). EFL University Students' Difficulties in the Essay Writing Process. *Scope : Journal of English Language Teaching*, 7(1), 66. <https://doi.org/10.30998/scope.v7i1.13793>
- Deng, J., & Lin, Y. (2022). The Benefits and Challenges of ChatGPT: An Overview. *Frontiers in Computing and Intelligent Systems*, 2(2), 81–83.
- Fryer, L. K., & Carpenter, R. (2006). Bots as language learning tools. *Language Learning and Technology*, 10(3), 8–14. <https://doi.org/http://dx.doi.org/10125/44068>
- Fryer, L. K., Nakao, K., & Thompson, A. (2019). Chatbot learning partners: Connecting learning experiences, interest and competence. *Computers in Human Behavior*, 93, 279–289. <https://doi.org/10.1016/j.chb.2018.12.023>
- Ghafar, Z. N., Salh, H. F., Abdulrahim, M. A., & Farxha, S. S. (2023). The Role of Artificial Intelligence Technology on English Language Learning: A Literature Review. *Canadian Journal of Language and Literature Studies*, 3(2), 17–31. <https://doi.org/10.53103/cjlls.v3i2.87>
- Huang, W., Hew, K. F., & Fryer, L. K. (2022). Chatbots for language learning—Are they really useful? A systematic review of chatbot-supported language learning. In *Journal of Computer Assisted Learning* (Vol. 38, Issue 1, pp. 237–257). John Wiley and Sons Inc. <https://doi.org/10.1111/jcal.12610>
- Istihari, Sofiah, V., & Abidin, Y. (2023). An Analysis of Cohesion and Coherence in Analytical Exposition Texts Generated by AI Chatbot Auto-generative System. In *Annual International Seminar on English Language Teaching* (Vol. 8, Issue 1). <https://jurnal.untirta.ac.id/index.php/aiselt>
- Kim, N.-Y., Cha, Y., & Kim, H.-S. (2019). Future English Learning: Chatbots and Artificial Intelligence. *Multimedia-Assisted Language Learning*, 22(3).
- Kohnke, L., Moorhouse, B. L., & Zou, D. (2023). ChatGPT for Language Teaching and Learning. In *RELC Journal* (Vol. 54, Issue 2, pp. 537–550). SAGE Publications Ltd. <https://doi.org/10.1177/00336882231162868>

- Muthmainna, A., Siroj, R. A., & Hartatiana. (2025). Mastering the Art of Qualitative Data Analysis and Interpretation: Key Steps and Procedures. In *FiHeSu International Journal of Education and Development Research (FIJEES)* (Vol. 2, Issue 1). <https://ejournal.fihesu.com/index.php/FIJEES>
- Puspita Dewi, A. E., Fauzan, U., & Nadia, N. (2022). The Use of Social Media in Learning English Writing of Indonesian English Department Students. *Journal of English Language Teaching and Linguistics*, 7(1), 245. <https://doi.org/10.21462/jeltl.v7i1.882>
- Rosdiana, S., Noercolies, M. A., & Fauzan, M. H. (2024). The Use of Artificial Intelligence in Teaching Writing Skills. *EDUCASIA: Jurnal Pendidikan, Pengajaran, Dan Pembelajaran*, 9(1), 45–56. <https://doi.org/10.21462/educasia.v9i1.251>
- Silitonga, L. M., Hawanti, S., Aziez, F., Furqon, M., Zain, D. S. M., Anjarani, S., & Wu, T.-T. (2023). The Impact of AI Chatbot-Based Learning on Students' Motivation in English Writing Classroom. In *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics): Vol. 14099 LNCS* (pp. 542–549). [https://doi.org/10.1007/978-3-031-40113-8\\_53](https://doi.org/10.1007/978-3-031-40113-8_53)
- Silitonga, L. M., Wiyaka, Suciati, S., & Prastikawati, E. F. (2024). The Impact of Integrating AI Chatbots and Microlearning into Flipped Classrooms: Enhancing Students' Motivation and Higher-Order Thinking Skills. *Lecture Notes in Computer Science (Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*, 14786 LNCS, 184–193. [https://doi.org/10.1007/978-3-031-65884-6\\_19](https://doi.org/10.1007/978-3-031-65884-6_19)
- Vita Losi, R., Putra, E., Ali, N., & Silvana Dewi, A. (2024). Investigating Artificial Intelligence (AI) as a Vocabulary Learning Tool: Students' Perception to Use ChatGPT. *North Sumatra Jl. Jend. Gatot Subroto KM*, 3, 561–566.