

# Prompt writing and linguistic-syntax collaboration in power-writing AI utilization to assist introduction writing



Rohani Ganie<sup>a</sup> ✉ | T. Silvana Sinar<sup>a</sup> | Fikry Prastya Syahputra<sup>a</sup> | Afryna Veronica<sup>a</sup>

<sup>a</sup>Universitas Sumatera Utara, Indonesia.

**Abstract** The literacy level in Indonesia is relatively low. Therefore, there is a need for research aimed at increasing literacy in Indonesia. This research aims to explore the application of prompt writing techniques in the context of artificial intelligence (AI) to improve literacy. The writing prompt technique involves composing a short statement or question that stimulates critical thinking, analysis, and reflection on a topic. In the context of AI, this technique can be applied to develop interactive tools that help improve reading and writing comprehension in students and teachers. Students who make use of this theory development are involved in the study. The student tried out AI writing. Two groups were created out of them. Five students made up Group 1, which was given instructions on how to use prompt writing techniques. Five students made up group 2 (control), which did not get any lessons on how to use prompt writing techniques. The results showed that group 2 did not make any variations on the tasks given. The five students only copied the prompts provided in the assignment without editing them first. This caused the five students to produce the same output. This is what should not happen because it increases the plagiarism value of the writing. Group 1, on the other hand, made changes to the assignment's prompt. Despite the initial prompt being the same for all five pupils, the changes made by the students led to varied output from each. The conclusion that can be derived from this experiment is that training in using artificial intelligence is necessary, as shown in group 2, in which this technological advancement is not being utilized to its full potential.

**Keywords:** artificial intelligence, power-writing AI, linguistic-syntax, writing skills, Indonesia literacy

## 1. Introduction

UNESCO reported that Indonesia's adult literacy rate reached 95.6% in 2019 after it steadily increased over the previous few decades. However, there are still issues with access to schools and educational quality, particularly in isolated and rural areas. In the meantime, this issue is one of the sustainable development goals (SDGs), specifically in Point 4. In this case, it is necessary to distribute textbooks and references to areas where internet access is difficult. Overall, although there are still challenges in terms of the quality of education and access to education in Indonesia (Ganie and Rangkuti, 2019), as previously mentioned, the government has adopted several initiatives and programs to improve literacy rates and educational quality for students and instructors. Additionally, this study suggests that the use of artificial intelligence (AI) will be able to assist these initiatives. However, there has not been much research into optimizing the outcomes of applying AI. Most researchers only look at the benefits and impacts (positive and negative) of the emergence of AI.

Furthermore, AI is developing rapidly in all sectors of the world. For example, many government agencies already rely on automated decision-making technology in areas such as managing traffic, conducting risk assessments, screening immigrants, and allocating social services via AI (Von Struensee, 2021). Additionally, private businesses have used AI in their debt management, lending, and employment procedures. In all spheres of human endeavour, including education, AI solutions are incredibly effective. AI applications accelerated the discovery and application of remedies during the COVID-19 pandemic, particularly in the area of vaccinations. (Omorogiuwa et al., 2023).

However, AI is underemphasized by education systems, especially at the university level. In Africa, research on this topic was conducted by Omorogiuwa et al., (2023). Take, for example, CHATGPT, a well-known AI that was in the headlines between 2022 and 2023. This AI belongs to the power-writing AI group, and one of its merits is that it can help students (Cheong & Hong, 2023; Fauzi et al., 2023; Imran & Almusharraf, 2023; Mohammed et al., 2023; A. Rahman et al., 2022). It is acceptable for students to use power-writing AI to improve their writing skills. However, one cannot rely completely on AI; doing so would be similar to cutting corners. To strengthen their writing ability, students should remain involved in the process, come up with original ideas, and ask classmates and teachers for comments.



Furthermore, AI is being rapidly integrated into the field of education, opening new avenues for teaching and learning. AI integration in education is still in its early stages, but it has the potential to transform the way we teach and learn. As AI technology advances, it will almost certainly play a larger role in education. However, it is necessary to recognize and acquire critical awareness of the issues posed by human-AI collaboration (Figoli et al., 2022). Consequently, the goal of this study is to add to existing research on AI and creative writing. The findings of this study seek to develop a scientific environment that makes use of writing technology while following relevant writing conventions.

Several previous studies have explained the role of AI power writing in students (Fauzi et al., 2023). Some studies have analyzed the impact of the use of AI power writing as a learning medium. A more specific analysis of the role of power-writing AI as a student writing assistant was conducted by Imran & Almusharraf, (2023). There are also Cheong & Hong, (2023) who analyze from a language learning perspective. Sabarun et al. (2024) reported that instrumental motivation contributed 70.15% to writing performance, whereas integrative motivation contributed 17.03%, with a combined effect of 87%. Instrumental motivation had a stronger impact, and the study suggests incorporating more integrative incentives in writing classes. Borong & Yamson (2024) reported that both module-based learning and digital storytelling effectively improved students' writing skills, with minimal differences between the two methods. This highlights that teacher intervention plays a crucial role in helping students address their writing weaknesses, and further research is recommended to enhance their writing skills and interventions. However, not only does research produce positive results, M. M. Rahman & Watanobe, (2023) tries to address the negative side of using power-writing AI. Despite these various research themes, there is little research on power-writing AI worldwide that addresses how to use it effectively in a more specific context. This situation might be considered research, the results of which can later be utilized as a reference or instructional in the application of power-writing AI. As a result, the purpose of this research is to fill the existing gap and connect the disconnected sides.

In light of the aforementioned reasoning, this study combines prompt writing techniques with linguistic-syntax theory. The introduction of a scientific article will be written via the application of this writing approach. We chose the introduction section because we think it can best utilize the writing capabilities of AI. In addition, writing academic papers is necessary for university students, and educators need the newest method from time to time (Cassandra et al., 2024). The findings of this study will later be applied to the creation of instructional materials that emphasize the use of prompt writing techniques that are combined with linguistic theory and make use of power-writing AI. Yusuf et al., (2023) also mention that developing an engaging worksheet is crucial in improving student writing skills. This study is significant since it focuses on the fourth SDG. Another issue is that power-writing AI, which is becoming increasingly popular and may assist professors and students with their tasks, has not been used as well as anticipated.

**2. Methods**

This research uses a qualitative descriptive method approach. The experimental results can be explained according to the data and may be different in other samples even if there are similar themes or theories. As its essence, qualitative research is a paradigm that emphasizes the exploration of various perspectives, complexities, individual differences, and how people make sense of their experiences (Hersh. D, 2022). The data were analyzed via content analysis (Krippendorff, 2004), in which the data were derived from student writing that uses <https://www.perplexity.ai/> (the power-writing AI) in its work and the results of the student's laptop/PC screen recordings. The data used are words, sentences and all the modes in the recorded video. The data are retrieved from the data sources via the documentary technique.

The research began with an experiment on ten samples of students who were asked to write an introduction from the title/topic provided. All writing used AI, but five were taught using the prompt writing technique (Group 1), and five were not (Group 2/control). Their qualifications are the same, namely, in the fifth semester, students of the English Literature Study Program take creative writing and syntax courses with B+ or A grades, respectively. The tasks assigned to Group 1 and the control group are shown in table 1 as follows:

**Table 1** Tasks for the writing experiment using power-writing AI.

Group 1	Group 2 (Control)
<p><i>"I want to make a scientific article which discuss about students' composition on news writing which later will be analyzed using Appraisal theory."</i></p> <p>Please write at least two paragraphs of introduction with approximately 200 words using perplexity.ai by applying the previous method!</p>	<p><i>"I want to make an article which discuss about food vlogger slogan which later will be analyzed using figure of speech theories."</i></p> <p>Please write at least two paragraphs of introduction with approximately 200 words using perplexity.ai!</p>

**3. Results**

The use of power-writing AI as a writing aid has become an important subject in this research. The results of the experiments show that students who use AI carelessly tend to produce work that is less than satisfactory. This is reflected in the Group 2/Control results. However, when given clear direction or guidance in its use, the quality of the writing produced

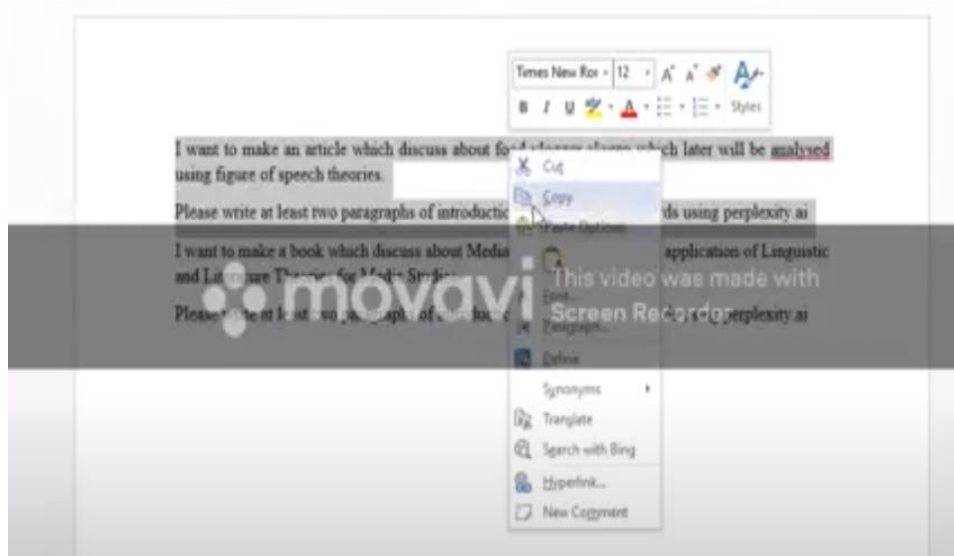


increases significantly. One of the most obvious indices is the similarity index. The following is a sample presentation of the results of the Group 2/Control experiment as shown in table 2:

**Table 2** Presentation of Group 2/Control Results.

Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
<i>Task:</i>				
<i>I want to make an article which discuss about food vlogger slogan which later will be analyzed using figure of speech theories.</i>	<i>[1<sup>st</sup> P] Food vlogging has become a popular trend in recent years, with many individuals sharing their culinary experiences and recipes online. One aspect that sets food vloggers apart from one another is their unique slogans. These slogans are often catchy phrases that encapsulate the vlogger's brand and message. In this article, we will explore the world of food vlogger slogans and analyze them using figure of speech theories.</i>	<i>[1<sup>st</sup> P] Food vlogging has become a popular trend in recent years, with many individuals sharing their culinary experiences and recipes online. These food vloggers often use catchy slogans to attract viewers and promote their content. In this article, we will explore the world of food vlogger slogans and analyze them using figure of speech theories.</i>	<i>[1<sup>st</sup> P] Food vloggers often use slogans to promote their channels and content. These slogans can be analyzed using figure of speech theories to better understand their effectiveness in conveying a message. To analyze food vlogger slogans using figure of speech theories, one could start by identifying the types of figures of speech used in the slogans, such as metaphors, similes, hyperbole, and others. Then, one could analyze how these figures of speech contribute to the overall message and effectiveness of the slogan</i>	<i>[1<sup>st</sup> P] Food vlogging has become a popular trend in recent years, with many individuals sharing their culinary experiences and recipes on various social media platforms. One of the key elements of a successful food vlogger is their ability to create a unique and catchy slogan that captures their brand and personality. These slogans not only help to differentiate them from other food vloggers but also serve as a memorable tagline that viewers can associate with their content.</i>

On the basis of the results presented above, several similarities clearly influence the acceptance of the writing. Because writing with a high similarity value will certainly not be accepted for publication. Furthermore, in learning to write, of course, this is also not a proud result. However, what actually happens when students in this group write with the help of AI power writing? It can be seen from the screenshots of the laptops used by the students that all the students in group 2/control only copied assignments in the form of assignment instructions (seen in Figure 1) and moved them to perplexity.ai (seen in Figure 2). Then, the students run the AI software and immediately copy the results (seen in Figure 3) and again immediately transfer them to the worksheet (seen in Figure 4). The editing was performed by the students only to tidy up the margins, alignment and spacing of the text. No one edits the written content.



**Figure 1** Sample of Student Screen Recording 1.

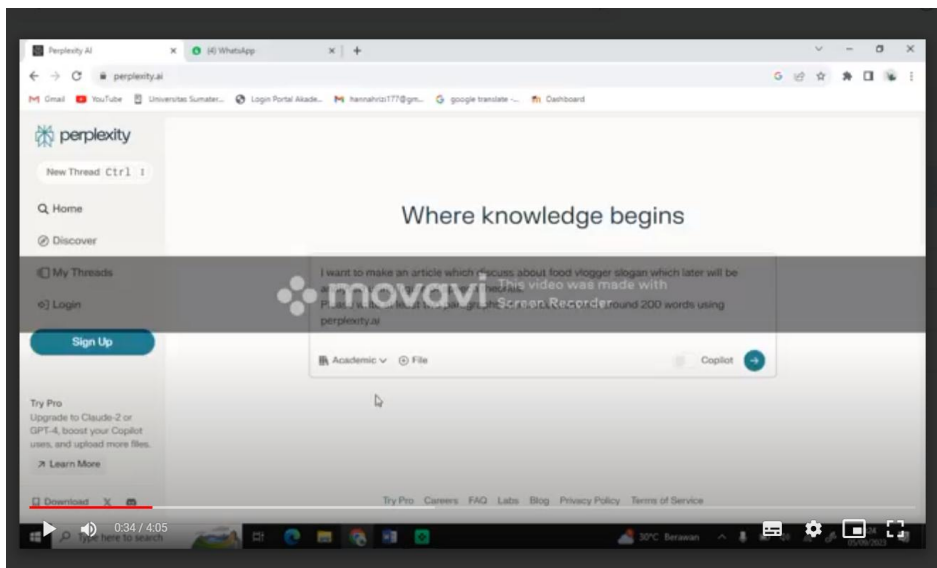


Figure 2 Sample of Student Screen Recording 2.

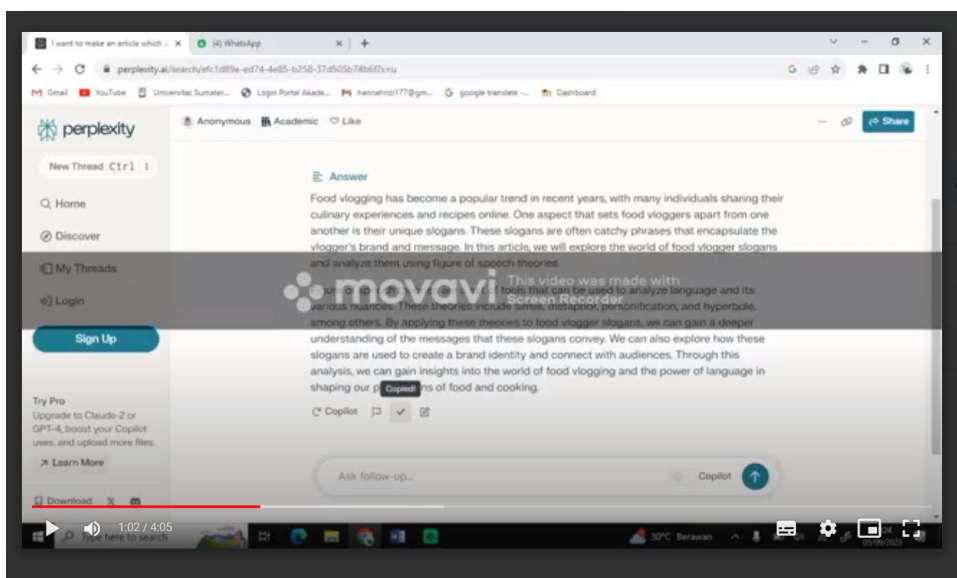


Figure 3 Sample of Student Screen Recording 3.

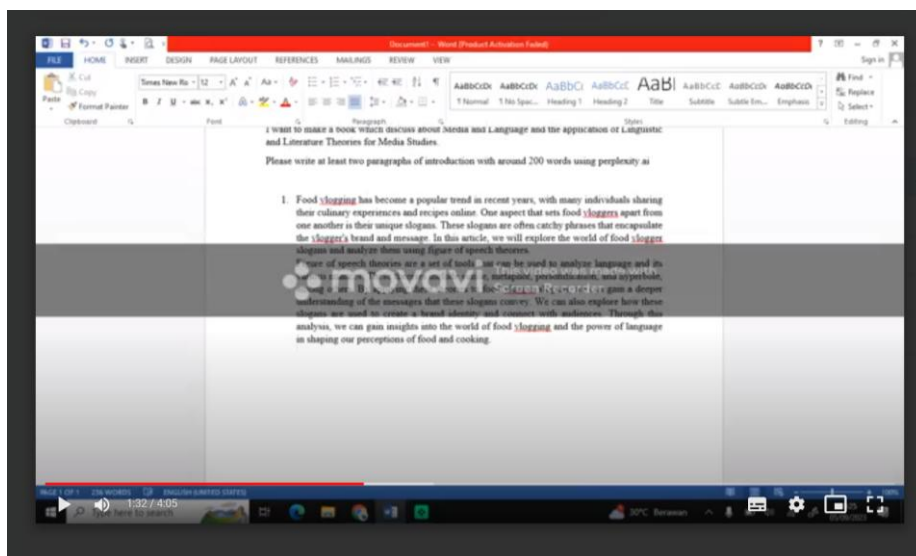


Figure 4 Sample of Student Screen Recording 4.



In addition to producing unsatisfactory writing, such a procedure will undoubtedly impede students' future advancement in knowledge and proficiency. It is important to outline and stop this type of behavior in the field of education. Notably, group 2/the control group presented no discernible signs of learning from the exercise. This outcome might be a reflection of the work that has been done in the field of education since power-writing AI first appeared. However, is it the best course of action to outline the usage of power-writing AI? Given that educators are not yet able to monitor 100% of students' work progress, they should make peace and utilize all types of technology to support learning.

Through the results of group 1 data analysis, both writing results and work recordings, we should not avoid this AI power writing but instead make it a partner in language learning through prompt writing exercises in collaboration with language syntax theory. The results in group 1 are more diverse, as shown in Table 3 below:

**Table 3** Presentation of Group 1 results.

Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
<i>Task:</i> <i>I want to make a scientific article which discuss about students' composition on news writing which later will be analyzed using Appraisal theory.</i>				
[1 <sup>st</sup> P] Appraisal theory is a linguistic discourse analysis that provides different techniques to analyze "objectivity" and ideological bias in news editorial [1]. News writing is necessary for every news reporter, and they need to deal properly with all kinds of connections [5]. The connection between news writing and appraisal theory is that appraisal theory can be used to analyze news editorial and investigate the attitudes of reporters in their reporting of hard news [1][2]. There are several studies that have applied appraisal theory to analyze news reports and commentaries [1][2][5].	[1 <sup>st</sup> P] Several news articles and academic papers discuss students' composition in news writing. According to one CBS News article, a 13-year-old Chicago middle school student won national recognition for her essay on violence. Another New York Times article emphasizes the importance of student journalism and how it can be a formative experience for young writers. An academic paper published by ERIC investigates the impact of news writing instruction on students' attitudes and writing performance in English composition classes. Furthermore, an article in The Atlantic discusses the importance of writing in education and how shortcuts such as ChatGPT cannot replace it.	[1 <sup>st</sup> P] Is there any scientific article which discuss about students' composition on news writing? Yes, there are scientific articles that discuss students' composition on news writing. Two articles found on Semantic Scholar discuss the writing of master's biology students of an assignment-type modeled on News and Views articles [1][2]. These articles compare the writing of students with that of experts and analyze the use of stance and engagement resources in the writing. The articles suggest that students need to develop skills in projecting an authoritative stance toward their topic and engaging readers, taking account of their readers' prior knowledge and their readers' need for recognition as disciplinary members.	[1 <sup>st</sup> P] News writing remains a crucial aspect of education, with efforts being made to improve curricula to promote media literacy and teach critical thinking skills. The Common Core State Standards emphasize the need for students to write convincing arguments, clear informational texts, and compelling narratives. To achieve these targets, lecturers must motivate students through engaging learning media, strategies, and models. Writing is a key skill, and argumentative writing courses are offered to help students stay updated on current events.	[1 <sup>st</sup> P] A scientific article is a publication that is based on empirical evidence [2]. It can support a hypothesis with original research, describe existing research, or comment on current trends in a specific field[2]. Scientific papers are written to share original research work with other scientists or to review the research conducted by others [1]. They typically have two audiences: referees who help the journal editor decide whether a paper is suitable for publication, and journal readers themselves, who may be more or less knowledgeable about the topic addressed in the paper[1]. To be accepted by referees and cited by readers, papers must do more than simply present a chronological account of the research work [1].

The above is the result of a student's assignment when asked to write an introduction to an article or piece of writing according to the topic. Like group 2/control, group 1 also uses Perplexity.ai to assist them with writing. The difference is that this group is implied with training or material first about how to use power-writing AI on the basis of writing prompts that comply with syntax theory/rules. The diversity of the five authors is clearly visible, even though they cover the same topic. The first author starts with what theory is being proposed. The second and fourth authors begin with the object of study. Moreover, the third and fifth authors opened their writing by referring to other writings/works. In this study, we did not consider the quality of the writing. Regardless, in terms of the similarity index, the results of Group 1's writing are better than those of Group 2/control. What specifically transpired with group 1 to cause them to have different outcomes from group 2/control then? Please refer to the screenshot below for an example of how one of the Group 1 members completed the assignment.



In general, there were only two different things that the students in group 1 did and that the students in group 2/control did not do. The students in group 1 did not immediately move the task/command to Perplexity.ai Command Prompt, but they edited it into a question. Because the Command Prompt on Perplexity.ai is in the form of a question sentence. This is where students' knowledge comes into play; to what extent do they understand syntactic theory so that they can create questions that are suitable for artificial intelligence to understand? Figure 5 shows that the questions asked by students as writers were as follows: 1) What is the current state of news writing in Indonesia? 2) How does appraisal theory apply to news writing? 3) What are the implications of applying appraisal theory to student news writing? Considering that the task was to make a scientific article introduction that discussed students' composition in news writing, which was later analyzed via appraisal theory, this student divided the variables in the title.

This is what was directed when the student received training. Things you need to pay attention to when you want to write with the help of AI are as follows:

1. Decide what you want to write (Objectives).
2. Determine the themes (topic/variable).
3. Determine the Question Word
4. Please design the questions in the Prompt according to the format.  
[Question Words > time > Purpose > Theme or variations].

A look at what is shown in Figure 5 reveals that the students divided the instructions into three variables, namely, writing news as an object of research, the theory used, and the relationship between theory and data (more in previous research). However, students do not simply revise the prompt before it is used. As shown in Figure 6, students from Group 1 also edited the writing produced by AI.

AI implementation should be based primarily on this. The employment of AI in editing helps teach students about the process. Furthermore, pupils must read the writing produced by AI, which they naturally must comprehend. From here, the development of students' reading skills will be honed. Moreover, their knowledge of new terminology they encounter from their writing will also broaden their insight.

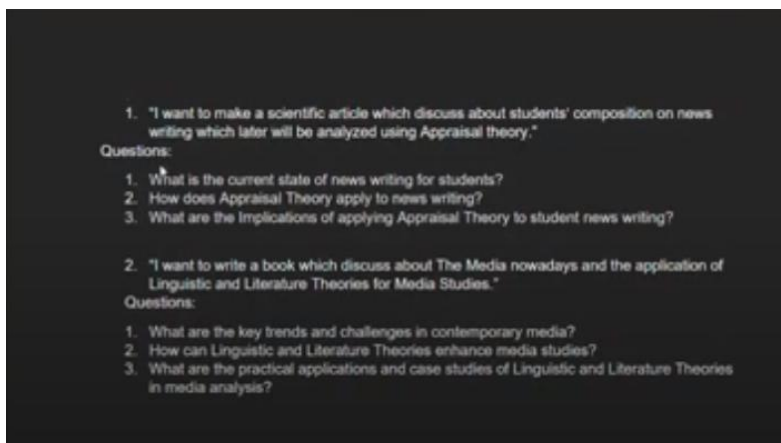


Figure 5 Sample of Student Screen Recording 5.

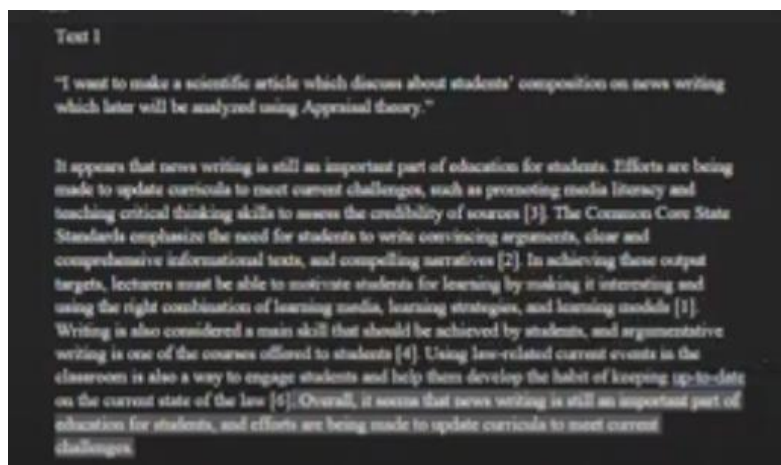


Figure 6 Sample of Student Screen Recording 6.

#### 4. Discussion

There is some evidence to suggest that the appropriate use of power-writing AI can help the teaching and learning process by improving students' writing skills. For example, Santi et al., (2023) reported that the use of an AI-based writing tool improved the quality of students' writing and increased their engagement in the writing process. Our study did not mention the quality of the content, but in fact, it contributed to the literature, which stated that AI can have a positive impact. Alavi (2024) suggested that digital learning is one solution for lecturers in future learning. The integration of power-writing AI in education has shown promising results in meeting individual learning needs. Through adaptive algorithms, these tools can identify specific areas where students struggle and provide targeted assistance. This personalized approach helps students with varying skill levels, allowing them to progress at their own pace.

Moreover, if we look at it from the educator's perspective, AI can help make their work easier. Educators often face challenges in providing detailed feedback to every student due to time constraints. Let us say that the use of AI is justified by editing obligations, and so on, the teacher does not need to assess or supervise the work process. They can focus more on higher-order skills, such as content development and critical thinking, whereas AI assists in correcting mechanical errors. However, it is important to ensure that the use of AI does not replace the role of teachers in providing feedback and guidance to students but rather serves as a complementary tool to support their learning (Fan & Ma, 2022).

On the other hand, the unfettered use of AI without proper guidance and oversight poses a risk of hindering the development of students' abilities and can promote a culture of seeking shortcuts rather than fostering genuine learning experiences. When students rely heavily on AI to solve questions without understanding the underlying concepts, they depend on these tools as shortcuts to obtaining answers. This overreliance can lead to a passive learning approach where students prioritize finding quick solutions over engaging in critical thinking and problem solving (Ahmad et al., 2021).

Moreover, to mitigate these potential downsides, it is crucial to integrate AI tools within a framework of guided learning. Syahputra et al., (2023) also mention that today's learning should be integrated by technology. Teachers and educators play a pivotal role in ensuring that students use AI as a resource rather than as a crutch. They can encourage critical thinking by guiding students to analyze AI-generated answers, understand the reasoning behind them, and encourage independent problem solving (Seo et al., 2021). Overall, the research strongly suggests that appropriate integration of power-writing AI tools in the teaching process can lead to substantial improvements in students' writing skills, individualized learning experiences, and overall engagement in the classroom.

On the basis of the above explanation and research results, integrating syntactic theory into prompt writing training involves emphasizing the structural elements of language syntax, grammar, and sentence construction. By honing students' understanding of syntactic principles, this approach aims to foster a deeper comprehension of language mechanics. The fusion of syntactic theory-based training and AI holds promise in several key areas. It offers a pathway for students to grasp the structural nuances of language, enabling them to create coherent and grammatically sound compositions (Bell et al., 2023; Buriak et al., 2023). A proper prompt itself provides better results when used in power-writing AI (Krause, 2023). Moreover, this approach encourages deeper engagement with language mechanics, potentially instilling a lasting understanding of syntactic principles. However, this approach necessitates a balanced implementation strategy. Once again, overreliance on AI feedback might inadvertently discourage independent problem solving and hinder creativity. Therefore, careful guidance from educators remains imperative to encourage a symbiotic relationship between AI tools and students' cognitive development.

#### 5. Conclusions

One intriguing strategy for enhancing students' language comprehension and writing skills in AI-assisted learning settings is the integration of syntactic theory-based prompt writing training. Teachers can set the stage for a more complex and all-encompassing learning experience by utilizing the effectiveness of AI tools in conjunction with a thorough comprehension of syntactic principles. However, the careful implementation of these approaches in the direction of teachers is still essential to realizing their full potential and encouraging students' independent study and critical thinking.

Furthermore, these findings provide solutions for anyone but more specifically for students and teachers to express their thoughts, research results and so on in media that can be enjoyed by many people. In line with this, the problem stated in the title and introduction of this research is that equal distribution of knowledge will be realized. This research also suggests that subsequent researchers should highlight more aspects of the quality of AI power-writing results and the diction tendencies used by AI. In the process of completing this research, interesting things related to these two things were discovered.

#### Acknowledgment

This article is funded by the TALENTA 2023 Research Funding, Government Collaborative Research Scheme from Universitas Sumatera Utara's Research Institutions. The authors express their greatest gratitude to the Rector of Universitas Sumatera Utara (USU), the director of the USU's research institutions (LP – USU), the Dean and All Vice deans of the Faculty of Cultural Sciences, the Head and Secretary of the English Literature Study Program, and all the stakeholders who helped with this research.

## Ethical considerations

I confirm that I have obtained all consent required by the applicable law to publish any personal details or images of patients, research subjects, or other individuals used. I agree to provide *Multidisciplinary Science Journal* with copies of the consent or evidence that such consent has been obtained if requested.

## Conflict of Interest

The authors declare no conflicts of interest.

## Funding

Funded by Universitas Sumatera Utara with contract number: 47/UN5.2.3.1/PPM/KP-TALENTA/R/2023 receive on 29<sup>th</sup> August 2023

## References

- Ahmad, S. F., Han, H., Alam, M. M., Rehmat, M. K., Irshad, M., Arraño-Muñoz, M., & Ariza-Montes, A. (2023). Impact of artificial intelligence on human loss in decision making, laziness and safety in education. *Humanities and Social Sciences Communications*, 2023, 1–14. <https://doi.org/10.1057/s41599-023-01787-8>
- Alavi, S. (2024). Challenges of lecturers in material selection to foster EFL university students' self-regulation. *LEARN Journal: Language Education and Acquisition Research Network*, 17(1), 514–537. Retrieved from <https://so04.tci-thaijo.org/index.php/LEARN/article/view/270425>
- Bell, G., Burgess, J., Thomas, J., & Sadiq, S. (2023). Rapid response information report: Generative AI—language models (LLMs) and multimodal foundation models (MFMs). *Australian Council of Learned Academies*.
- Borong, N. L., & Yamson, S. M. (2023). Digital storytelling as a method for teaching writing skills. *Multidisciplinary Science Journal*, 5, Article 2023063. <https://doi.org/10.31893/multiscience.2023063>
- Buriak, J. M., Akinwande, D., Artzi, N., Brinker, C. J., Burrows, C., Chan, W. C. W., Chen, C., Chen, X., Chhowalla, M., Chi, L., Chueh, W., Crudden, C. M., Carlo, D. D., Glotzer, S. C., Hersam, M. C., Ho, D., Hu, T. Y., Huang, J., Javey, A., ... Ye, J. (2023). Best practices for using AI when writing scientific manuscripts: Caution, care, and consideration—Creative science depends on it. *ACS Nano*, 17(5), 4091–4093. <https://doi.org/10.1021/acsnano.3c01544>
- Cassandra, N. W., Fithriani, R., Febriyanti, R. H., & Mukminin, A. (2024). Becoming scholarly writers through professional learning community: A phenomenological case study of Indonesian teacher-educators. *LEARN Journal: Language Education and Acquisition Research Network*, 17(1), 8–29. Retrieved from <https://so04.tci-thaijo.org/index.php/LEARN/article/view/270370>
- Cheong, W., & Hong, H. (2023). The impact of ChatGPT on foreign language teaching and learning: Opportunities in education and research. *Journal of Educational Technology and Innovation*, 37–45.
- Fan, N., & Ma, Y. (2022). The effects of automated writing evaluation (AWE) feedback on students' English writing quality: A systematic literature review. *Language Teaching Research Quarterly*, 28, 53–73. <https://doi.org/10.32038/ltrq.2022.28.03>
- Fauzi, F., Tuhuteru, L., Sampe, F., Ausat, A. M. A., & Hatta, H. R. (2023). Analysing the role of ChatGPT in improving student productivity in higher education. *Journal on Education*, 5(4), 14886–14891. <https://doi.org/10.31004/joe.v5i4.2563>
- Figoli, F. A., Mattioli, F., & Rampino, L. (2022). AI in the design process: Training the human-AI collaboration. In *Proceedings of the 24th International Conference on Engineering and Product Design Education: Disrupt, Innovate, Regenerate and Transform* (pp. 8–13). <https://doi.org/10.35199/epde.2022.61>
- Ganie, R. D., & Rangkuti, R. (2019). Reading comprehension problems on English texts faced by high school students in Medan. *KnE Social Sciences*, 2019, 684–694. <https://doi.org/10.18502/kss.v3i19.4896>
- Hersh, D. (2022). Special issue: Qualitative research and innovation in speech-language pathology. *International Journal of Speech-Language Pathology*, 24(5), 447–448. <https://doi.org/10.1080/17549507.2022.2125074>
- Imran, M., & Almusharraf, N. (2023). Analyzing the role of ChatGPT as a writing assistant at higher education level: A systematic review of the literature. *Contemporary Educational Technology*, 15(4), Article ep464. <https://doi.org/10.30935/cedtech/13605>
- Krause, D. S. (n.d.). Proper generative AI prompting for financial analysis. 1–28.
- Krippendorff, K. (2004). *Content analysis: An introduction to its methodology*. Sage Publications.
- Mohammed, A. A. Q., Al-Ghazali, A., & Khalid, A. S. A. (2023). Exploring ChatGPT uses in higher studies. *Journal of English Studies in Arabia Felix*, 2(2), 9–17. <https://doi.org/10.56540/jesaf.v2i2.55>
- Omorogiwa, O., Ohiagu, K., & Lawal, K. H. (2023). Towards the review of artificial intelligence programme curriculum and effective collaborations among academia for AI programme development in Africa. *Advances in Multidisciplinary and Scientific Research Journal Publication*, 11(1), 1–16. <https://doi.org/10.22624/aims/digital/v11n1p1x>
- Rahman, A., Irfan, H., & Butt, M. (2022). Impact of creative writing techniques as the pedagogical intervention on English language writing skills of undergraduate students in Pakistani universities. *Global Language Review*, VII(1), 71–79. [https://doi.org/10.31703/glr.2022\(VII-1\).07](https://doi.org/10.31703/glr.2022(VII-1).07)
- Rahman, M. M., & Watanobe, Y. (2023). ChatGPT for education and research: Opportunities, threats, and strategies. *Applied Sciences (Switzerland)*, 13(9). <https://doi.org/10.3390/app13095783>
- Sabarun, Widiastuty, H., Ajahari, Asmawati, & Azhari Azman, M. N. (2024). The relationship between instrumental and integrative motivation on the students' writing ability. *Multidisciplinary Science Journal*, 6(10), Article 2024166. <https://doi.org/10.31893/multiscience.2024166>
- Santi, P. T. U., Andayani, & Sumarwati. (2023). Utilization of artificial intelligence technology in an academic writing class: How do Indonesian students perceive? *Contemporary Educational Technology*, 15(4), Article 13419. <https://doi.org/10.30935/cedtech/13419>
- Seo, K., Tang, J., Roll, I., Fels, S., & Yoon, D. (2021). The impact of artificial intelligence on learner–instructor interaction in online learning. *International Journal of Educational Technology in Higher Education*. <https://doi.org/10.1186/s41239-021-00292-9>

von Struensee, S. (2021). The role of social movements, coalitions, and workers in resisting harmful artificial intelligence and contributing to the development of responsible AI (Vol. 431, Issue 2019).

Syahputra, F., Nurlela, N., Nasution, V. A., & Nasution, E. H. (2024). Implementasi penggunaan media Canva dalam pembelajaran kurikulum Merdeka di SMA Pendidikan Keluarga Pematangsiantar. *Linguistik Terjemahan Sastra (LINGTERSA)*, 5(2), 109–113. <https://doi.org/10.32734/lingtersa.v5i2.15472>

Yusuf, M., Syahputra, F. P., Lubis, A. A., Aswani, A., & Tambunan, R. W. (2023). Developing genre-based English worksheet for vocational students by using 4-D development model to improve writing skill. *World Journal of English Language*, 14(1), 34. <https://doi.org/10.5430/wjel.v14n1p34>