

Students' Perceptions on AI Technology: Gemini as a Writing Assistant Tool

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ABSTRACT

AI is becoming increasingly common in many industries, including education, as technology advances. AI is used in education to provide learning content that suits the needs of students. One of them is Gemini. Gemini is an AI tool that can answer questions in an informative way, even when the questions are open-ended, challenging, or strange. The purpose of this research is to see students' perceptions of the use Gemini as an auxiliary tool in the English Writing process. This research was qualitative in nature in which Semi-structured interview was utilized to collect the data. The interview consisted of main questions and follow-up questions, where the follow-up questions were based on the answers to the main questions given at the beginning. This study involved 9 selected EFL students out of 30. Most students already had their own AI technology applications, so they were reluctant to adapt to AI technology applications like Gemini. But on the other hand, the students' perceived that Gemini had many features that were very helpful in the writing process. students preferred AI technology applications that they had used before compared to Gemini for this time being, but when viewed from the perceptions given by students, researchers believe Gemini would be used as a writing tool in the future. This research can provide another option for students to facilitate the writing process so that they do not depend on the AI technology applications they have used before.

I. Introduction

Student perception refers to how students understand and interpret their educational experiences [1]. It encompasses a wide range of factors, including their views on teachers, teaching methods, learning materials, the classroom environment, and even the overall school culture [2]. These perceptions are shaped by individual experiences, backgrounds, and learning styles [3].

Understanding student perception is crucial for educators [4] By gaining insight into how students perceive their learning environment, educators can identify areas for improvement, tailor their teaching methods to better match student needs, and ultimately create a more engaging and effective learning experience for everyone.

For example, In education artificial intelligence (AI) technology plays a crucial role in enhancing teaching methods and learning experiences. For example, if students perceive a particular teaching method as boring or ineffective, it might be a sign that the teacher needs to explore alternative approaches [5]. Conversely, if students find a class to be highly engaging and stimulating, the teacher can use that knowledge to replicate that success in other areas. AI in education leverages its capacity for learning, adapting, problem-solving, decision-making, and language comprehension, [6] ultimately improving effectiveness and efficiency while providing a more personalized and adaptive learning experience for each individual.

Adaptive learning systems are one way that AI technology is being used in education. To deliver learning content that meets students' needs, this system makes use of data regarding students' talents and learning requirements. One of the Artificial intelligence (AI) system is Gemini [7]. Gemini is a large language model (LLM) created by Google AI. LLM is a type of artificial intelligence (AI) that is trained on very large datasets of text and code. This allows them to generate text, translate languages, write different types of creative content, and answer your questions in an informative way [8]. Although it is still in the development stage, Gemini has already shown its capabilities in an impressive range of tasks. This large language model capable of generating various creative text formats, such as poetry, code, scripts, musical pieces, emails, and letters. Its capabilities don't stop there, Gemini is also able to answer questions in a comprehensive and informative way, even when the question is open-ended, challenging, or strange [9].

There are many things that can be done using Gemini, one of which can be an assistant for students in the writing process both ordinary assignments, or scientific papers [8].

- 1) **Finding Ideas Topics and Themes:** Give an overview of what you want to write about, and Bard will suggest interesting topics, subtopics, and angles. **Brainstorming:** Explain your initial concept, and Bard will help you develop it with new and related ideas. **Seeking Information:** Ask questions related to your topic, and Bard will provide summarized information and reliable sources.
- 2) **Developing Your Writing Removing Writer's Block:** Explain your obstacles, and Bard will offer suggestions for starting over or overcoming writing challenges. **Checking Flow and Logic:** Share your draft, and Bard will help identify gaps or inconsistencies in your story. **Adding Variety:** Ask Bard to suggest synonyms, alternative phrases, or different sentence structures to improve your writing style.
- 3) **Editing and Proofreading Check Grammar and Spelling:** Upload your document, and Bard will help identify grammar, spelling, and punctuation errors. **Improve Fluency:** Ask Bard to suggest improvements to sentences that are stilted or don't flow well. **Ensure Clarity and Consistency:** Provide specific instructions, and Bard will help ensure your tone, style, and message are consistent throughout.

Currently in development, Gemini has already been made accessible to the public through early access granted by Google to selected users. These include researchers and academics who are collaborating with Google to explore Gemini's potential in fields like education, journalism, and scientific research [10]. Additionally, content creators have been given access to Gemini to enhance their ability to produce creative and informative content. Google also intends to integrate Gemini as an additional feature for Google Workspace users, alongside applications such as Gmail and Docs [11].

Students' backgrounds in AI experiences in writing vary greatly, depending on their education and exposure to technology [7]. Some students may have gained basic knowledge of AI through informatics or technology courses in high school, while others may have only been exposed to AI concepts upon entering college. Some students with a special interest in technology may have taken additional courses or been involved in simple AI projects before college. These experiences form their knowledge base and influence how they view and use AI in writing.

The current situation shows that many students are now more open and enthusiastic about using AI for writing. With the rapid development of AI technology, writing tools such as Gemini have become more accessible and easier to use [12]. Students utilize these tools for various purposes, such as improving grammar, developing ideas, or even writing an entire essay. Despite concerns about ethics and plagiarism, many students find that AI can be a valuable tool to improve their writing skills and overcome writing obstacles.

However, these experiences and conditions are not evenly distributed among all students. Some students may find it difficult to integrate AI into their writing process due to a lack of technical understanding or distrust of technology. Others still rely on traditional writing methods and prefer to write without AI assistance. These challenges reflect the need for more in-depth education and training on the use of AI in writing, so that all students can make the most of the potential of this technology in an ethical manner.

This research presents controversial issues about the use of Gemini in English education and the developments that have occurred in the use of Gemini as a tool or system that can help the writing process [13]. In addition, it will also briefly describe the main points of research results related to the use of Gemini in English education, and common problems in the use of Gemini by students in English writing skills such as plagiarism and the difficulty of taking responsibility for implementing the use of Gemini as a writing tool [14]. In the Era of Education 4.0, lecturer as educators have a great opportunity to provide technology for students to help their work, to be trained, not just taught, so that students can find answers to their problems with the help of technology [15]. Especially for universities, adopting technology in the student learning process is a good step to meet the needs of lifelong learning and the need for skills that go beyond a degree.

The researcher hopes this study can contribute to the concept of using Gemini as a writing tool in the context of English Language Education at the State Islamic University of North Sumatra. By understanding more about the effectiveness of this technology, effective steps can be found in improving students' writing skills and evaluating irresponsible Gemini users, it is hoped that teachers and lecturers will not be allergic to the presence of AI technology such as Gemini and can adjust. By trying and using it often, over time a sense of what the writing pattern produced by Geimini will arise so that more or less can detect the writing made with the help of Gemini.

II. Method

This study was a qualitative research in nature, in which the data was examined by analyzing the perceptions from the students [16]. The participants of this study were 30 EFL students in the Department of English at the State Islamic University of North Sumatra, Of the 30 students who filled out the questionnaire with Google Form, the researcher selected 9 students to represent those with low, medium, and high levels of interest.

The interview used in this research was a semi-structured interview, in which there were main questions and follow-up questions. The follow-up questions would be based on the answers to the main questions given at the beginning [17]. The interviews were conducted by using WhatsApp, an instant messaging application. Kauffman and Peil (2020) refer to this kind of interview as MIMI (Mobile Instant Messaging Interview). They state that interviews using instant messaging applications have advantages, such as flexibility of time and place, cost efficiency, and richer data.

In analyzing the data, the researcher used the Davis model perspective which focused on two determinants, namely perceived ease of use and perceived usefulness or perceived benefits [18].

III. Results and Discussion

A. Results

The purpose of this research is to see students' perceptions of the use of AI technology, namely Gemini, as an auxiliary tool in the English Writing process. In this research, the author divided participants into 3 levels of interest in using Gemini, level 1 with low interest, level 2 with moderate interest, and level 3 with high interest. Each level was represented by 3 students who had previously been selected by answering a questionnaire. In the interview process, students who were representatives at each level were given 4 questions each, whose answers would later be summarized as their perceptions of Gemini AI technology.

1. Students having low interest in Gemini

There were two main reason why the students did not want to change their tools to help them in writing, namely:

a. Convenience with their previous technology

From the interview results of the three participants who had low interest, participants P1 and P2 had the same reason. They thought that the applications or technologies they used before were good enough to meet their needs in helping the writing process, such as summarizing, translating sentences, grammar checking, finding new ideas or information and many more. Technologies such as ChatGPT, Uc dictionary, Grammarly were the technologies that they used before. The students thought that

there was no need to adapt to new technologies like Gemini in order to help them in the writing process. This can be seen in statements (P1Q1) and (P2Q1) in the table. However, it does not rule out the possibility that someday they will need Gemini to be their tool in the writing process.

b. Feeling unsure about Gemini's performance

Unlike the previous participant, it can be seen in the statement in (P3Q1) P3 had her own reason why she did not choose Gemini as a tool in her writing process, namely because she thought that Gemini was still in the development stage so that all the features in Gemini could not be utilized optimally, which later it could affect the results of the user's writing. However, it is the same thing as the previous participant that it does not rule out the possibility as well.

2. Students having moderate interest in Gemini

At this level each participant had their own different reasons, such as :

a. There was no urgency to use Gemini yet

At this level, each participant had their own reasons, such as, P4 thought that he had no urgency or interest that required him to use Gemini (P4Q1). Although he had previously used Gemini several times, such as to find references for assignments, find short answers, make essay outlines (P4Q3). But, this was still a general thing, not specifically only utilizing Gemini as a writing tool. Using Gemini as a writing tool is not out of the question for P4, similar to some previous participants.

b. Worrying that Gemini would have a negative impact.

With all the convenience offered by Gemini through its features, P5 become worried. With the use of AI technology such as Gemini, it could cause laziness in students to look for answers manually, such as by reading books and articles or watching video tutorials. P5 believes that this could weaken brain function in students as users (P5Q1). This was because P5 himself had experienced the practicality and convenience when using Gemini in helping the writing process (P1Q3).

c. Gemini was not better than other AI technologies.

Based on his experience, P6 thought that Gemini was not better when compared to other AI technologies, especially in terms of accuracy and clarity when giving answers (P6Q1). For example, ChatGPT was much more complex, easy to use and also more accurate. But perhaps this was because Gemini was still in the development stage, there would be many more updates to Gemini's features in the future. So, it is possible that Gemini will become even better and even the best (P6Q4).

3. Students having high interest in Gemini

There were two reasons from participants who stated that Gemini can be very helpful in the writing process:

a. High accessibility of Gemini

Gemini could be used anywhere and anytime, and its young and fast access made using Gemini very practical in helping the writing process (P7Q1). Besides, every answer provided by Gemini also had a good grammar structure, clear data sources and was free from plagiarism (P7Q4).

b. Interesting impression of Gemini with its complex features

P8 was greatly helped by the features in Gemini. One of which was the word processing feature that could be used to create paragraphs by only entering the title. By doing this, the student only revised some vocabularies which were not suitable without having to think about each vocabulary word from the beginning (P8Q1). Not only that, accurate translation and grammar check were also features that really helped P8 in the writing process (P8Q4).

Similar from the previous participants, P9 also admired and appreciated the features in Gemini, such as the “change this response” feature where P9 could customize the answers to our commands according to our wishes, and also when given a command Gemini provides very diverse and complete answers with clear sources (P9Q4).

B. Discussion

Participants had different reasons why they needed to change their tools in writing English text. Most of them were already convenient with their previous technologies. It can be seen from the research data presented above that students already had already used other tools, such as Grammarly, Quillbot, ChatGPT, etc. ChatGPT was a strict competitor of Gemini because most of the participants had used or were more familiar with ChatGPT than Gemini. ChatGPT-3.5 had a higher percentage of correct and consistent answers than Google Bard experimental version [19] Comparing the technical and structural issues between ChatGPT and its rivals, ChatGPT is still the most popular among all AI technologies [12]. Thus, they were already quite comfortable with the applications they had used before so they were reluctant to adapt again to a new application. But, Google as we know is very good at controlling the search engine market, believes that Gemini will be able to compete with other AI technologies or applications. Gemini as a conversational AI service that, in addition to offering high-quality responses, can explain complicated situations [20].

Gemini has high accessibility in helping the writing process, Gemini may offer accessible and high-quality information to users [21]. Gemini can generate several paragraphs with just one command, Gemini has good translation and grammar check capabilities compared to other similar applications. As in previous research which states, Gemini users are 40%, Grammarly 32%, the rest use other AI applications or technologies such as QuillBot, Copilot, Claude, etc [22]. In this case, Gemini's heavy competitors are Quillbot and Grammarly, which are the favorite applications used by students to correct grammar in their writing. Which these features are very helpful in the writing process.

Word processing feature to form a paragraph according to the title entered. This feature can compose paragraphs with the word processing we want depending on the conditions required, whether in scientific writing or fiction, and Gemini also does not use language that is not too standard so that it seems like its own writing, so when compared to other applications such as quillbot and grammarly, which can only correct grammar and translate, it cannot create paragraphs as we want.

Gemini helps users find assignment references easily, Gemini gives a very attractive first impression. Gemini provides many answer options for each question or user command. For example, when the user commands Gemini to search “What is reading comprehension?” Gemini can provide a variety of answers, so the user can customize the answer. Moreover, if users need theories or expert opinions and references, Gemini can also provide fairly complete information. For example, “What is reading comprehension according to experts and references.”

Furthermore, there is the feature "Change this response." This feature gives users the option to choose short, long, simple, casual, and even professional answers, so that users can customize the answer for what kind of writing it is intended for. The following are the perceptions of low, medium and high interest of students at Gemini as AI technology.

Low

Participant	Q1	Q2	Q3	Q4
P1	"I prefer to continue using the existing technology I know rather than trying something new like Gemini Technology."	"Another application that I use beforehand , depending on needs SpecificI . Google Translate, uc dictatorship grammarly ."	"If I find a fitting explanation or significant benefits in task me , maybe I will switch using Gemini. But , so far This not " .	"I might need to use Gemini for a task later; I'm the one who requires it."
P2	"I tend to use ChatGPT to help with the writing process."	So far, this ChatGPT is capable of accurately processing, understanding, summarizing, and translating various types of information and questions.	One possible thing that can make me interested in using Gemini is that it can quickly provide reference ideas on the topics you are looking for.	"I still feel comfortable using ChatGPT. As long as ChatGPT can meet my needs sufficiently, I don't think I need to try other AI technologies."
P3	"This Gemini Technology Not yet released in a way public . so this thing make difficult For evaluate its performance in a way whole , with so I A little not enough interested with his."	"ChatGPT is more superior in programming matters, darling."	"Gemini responds faster than ChatGPT."	"I have not yet learned more about Gemini technology."

Medium

Partispant	Q1	Q2	Q3	Q4
P4	"So far, there is no urgency to use this Gemini technology, and there is no immediate possibility of using it in the near future."	"ChatGPT offers features similar to those of Facet, from visual aesthetics to performance."	Search for a Gemini's preference to help with the task; consider seeking an essay outline."	"I must, of course, use this Gemini for writing."
P5	"According to me, this AI can make us as students too pampered, causing us to become increasingly lazy in seeking answers."	"So far, this AI technology is like something I only know as Gemini."	"It is very practical and easy to understand for beginners who haven't tried it before."	"Although I'm very apprehensive, I won't use it often because I don't want to become dependent on it."
P6	"When compared with other AI technologies, these applications are not sufficiently accurate and clear when providing answers."	"I believe that ChatGPT is more complex, easier to use, and more accurate."	"It is possible if Gemini has features in AI technology that others do not."	"I have a small possibility of using Gemini."

High

Partispanant	Q1	Q2	Q3	Q4
P7	"Because Gemini This easy to be accessed anywhere and very help"	"Good structure and grammar in English are increasingly important for Gemini in the writing process."	"Every application has its own advantages and disadvantages, as well as unique focuses, so they cannot be compared to one another."	"In Gemini, every sentence is accompanied directly by its source, ensuring that the data used and the results are already free from plagiarism."
P8	"We need to format the paragraphs according to the title entered, featuring word processing."	"We want to arrange the paragraph with word processing, depending on the necessary condition."	"Here, Quilbot has become a heavy competitor for Gemini so far."	"The translation feature is accurate, and the grammar check provides superiority where applications like Grammarly only correct grammar without paragraph construction capabilities."
P9	"Gemini helps make it easier to find something I need."	"Gemini delivers a very interesting first impression."	"Gemini delivers different answers on the results of our search command, and it also provides comprehensive stated information."	"Features give me the option to choose responses: short, long, simple, casual, or even professional, allowing me to tailor my answers to the writing style addressed."

IV. Conclusion

This study involved 9 out of 30 pre-selected EFL students to give their perceptions on the use of Gemini as a writing tool. The findings stated that students were still more comfortable with the applications or AI technology that they had used before, so they thought there was no need to adapt to new technology. But on the other hand, with all the features of Gemini which were very useful for helping students' writing process, Gemini become very useful and reliable for some students who had used it. Thus, researchers believe that later students will slowly switch to using Gemini as their writing tool. What's more, with this research, researchers provide a view to students that there is an existence of Gemini which can be another AI Technology option for students to help their writing process.

References

- [1] C. M. Fernández-García, R. Maulana, M. Inda-Caro, M. Helms-Lorenz, and O. García-Pérez, "Student perceptions of secondary education teaching effectiveness: General profile, the role of personal factors, and educational level," *Front. Psychol.*, vol. 10, no. MAR, 2019, doi: 10.3389/fpsyg.2019.00533.
- [2] A. Alam and A. Mohanty, "Cultural beliefs and equity in educational institutions: exploring the social and philosophical notions of ability groupings in teaching and learning of mathematics," *International Journal of Adolescence and Youth*, vol. 28, no. 1. Routledge, 2023. doi: 10.1080/02673843.2023.2270662.
- [3] N. Tebbett, H. Jöns, and M. Hoyler, "Openness towards diversity? Cultural homophily in student perceptions of teaching and learning provided by international and home academics," *Glob. Soc. Educ.*, vol. 19, no. 5, pp. 522–544, 2021, doi: 10.1080/14767724.2020.1835464.

- [4] A. Shoufan, "Exploring Students' Perceptions of ChatGPT: Thematic Analysis and Follow-Up Survey," *IEEE Access*, vol. 11, pp. 38805–38818, 2023, doi: 10.1109/ACCESS.2023.3268224.
- [5] D. Raufelder, L. Nitsche, S. Breitmeyer, S. Keßler, E. Herrmann, and N. Regner, "Students' perception of 'good' and 'bad' teachers-Results of a qualitative thematic analysis with German adolescents," *Int. J. Educ. Res.*, vol. 75, pp. 31–44, 2016, doi: 10.1016/j.ijer.2015.11.004.
- [6] M. Prorok, "Applications of artificial intelligence systems," *Deliberationes*, vol. 15, no. Különszám, pp. 76–88, 2022, doi: 10.54230/delib.2022.k.sz.76.
- [7] L. Chen, P. Chen, and Z. Lin, "Artificial Intelligence in Education: A Review," *IEEE Access*, vol. 8, pp. 75264–75278, 2020, doi: 10.1109/ACCESS.2020.2988510.
- [8] M. Usman Hadi *et al.*, "Large Language Models: A Comprehensive Survey of its Applications, Challenges, Limitations, and Future Prospects Large Language Models: A Comprehensive Survey of Applications, Challenges, Limitations, and Future Prospects", doi: 10.36227/techrxiv.23589741.v4.
- [9] V. Plevris, G. Papazafeiropoulos, and A. Jiménez Rios, "Chatbots Put to the Test in Math and Logic Problems: A Comparison and Assessment of ChatGPT-3.5, ChatGPT-4, and Google Bard," *AI*, vol. 4, no. 4, pp. 949–969, Dec. 2023, doi: 10.3390/ai4040048.
- [10] E. Supriyadi, P. Studi, T. Industri, S. Tinggi, and T. Bandung, "EXPLORING GOOGLE BARD'S (GEMINI) ROLE IN ENHANCING RESEARCH ARTICLES IN COMPUTATIONAL THINKING AND MATHEMATICS EDUCATION Corresponding Author," *Papanda J. Math. Sci. Res.*, vol. 3, no. 1, pp. 28–37, 2024.
- [11] I. Ahmed and R. Islam, "Gemini-the most powerful LLM: Myth or Truth," 2024, doi: 10.36227/techrxiv.171177477.70151414/v1.
- [12] J. Shopovski, "Generative Artificial Intelligence, AI for Scientific Writing: A Literature Review," 2024, doi: 10.20944/preprints202406.0011.v1.
- [13] J. Rudolph, S. Tan, and S. Tan, "War of the chatbots: Bard, Bing Chat, ChatGPT, Ernie and beyond. The new AI gold rush and its impact on higher education," *J. Appl. Learn. Teach.*, vol. 6, no. 1, pp. 364–389, Jan. 2023, doi: 10.37074/jalt.2023.6.1.23.
- [14] B. D. Wale and Y. F. Kassahun, "The Transformative Power of AI Writing Technologies: Enhancing EFL Writing Instruction through the Integrative Use of Writerly and Google Docs," *Hum. Behav. Emerg. Technol.*, vol. 2024, 2024, doi: 10.1155/2024/9221377.
- [15] M. S. Ramírez-Montoya, M. I. Loaiza-Aguirre, A. Zúñiga-Ojeda, and M. Portuguese-Castro, "Characterization of the teaching profile within the framework of education 4.0," *Futur. Internet*, vol. 13, no. 4, pp. 1–17, 2021, doi: 10.3390/fi13040091.
- [16] S. TÜMEN AKYILDIZ and K. H. AHMED, "An Overview of Qualitative Research and Focus Group Discussion," *Int. J. Acad. Res. Educ.*, vol. 7, no. 1, pp. 1–15, Dec. 2021, doi: 10.17985/ijare.866762.
- [17] S. Mashuri, M. Sarib, A. Rasak, and F. Alhabsyi, "Semi-structured Interview: A Methodological Reflection on the Development of a Qualitative Research Instrument in Educational Studies Ruslin," vol. 12, no. 1, pp. 22–29, doi: 10.9790/7388-1201052229.
- [18] D. I. Prastiawan, S. Aisjah, and R. Rofiaty, "The Effect of Perceived Usefulness, Perceived Ease of Use, and Social Influence on the Use of Mobile Banking through the Mediation of Attitude Toward Use," *Asia Pacific Manag. Bus. Appl.*, vol. 009, no. 03, pp. 243–260, Apr. 2021, doi: 10.21776/ub.apmba.2021.009.03.4.

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- [19] A. A. Rahsepar, N. Tavakoli, G. H. J. Kim, C. Hassani, F. Abtin, and A. Bedayat, "How AI Responds to Common Lung Cancer Questions: ChatGPT versus Google Bard," *Radiology*, vol. 307, no. 5, 2023, doi: 10.1148/radiol.230922.
- [20] Bal Ram and Pratima Verma, "Artificial intelligence AI-based Chatbot study of ChatGPT, Google AI Bard and Baidu AI," *World J. Adv. Eng. Technol. Sci.*, vol. 8, no. 1, pp. 258–261, Feb. 2023, doi: 10.30574/wjaets.2023.8.1.0045.
- [21] Gemma Team *et al.*, "Gemma: Open Models Based on Gemini Research and Technology," 2024, [Online]. Available: <http://arxiv.org/abs/2403.08295>
- [22] M. Waqqor Bukhori, M. Giyaatsusshidqi, N. Agustina, and Y. Sabilal Huda, "Implementasi Penggunaan AI Dalam Proses Pembelajaran Mahasiswa Teknologi Pendidikan Angkatan 2023".