



Unlocking Second Language Students' Potential: ChatGPT's Pivotal Role in English for Academic Purposes Writing Success

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Abstract. ChatGPT, a freely available artificial intelligence tool launched in 2022, boasts powerful text processing and interaction capabilities due to its hundreds of millions of parameters. This study delves into the application of ChatGPT for English for Academic Purposes (EAP) writing among second language (L2) students through engagement with the ChatGPT. Notable findings include its capacity to provide prompt feedback on EAP writing, facilitate EAP vocabulary development, generate EAP writing ideas, and assist in instant writing feedback, all while bolstering students' confidence. The paper also addresses the limitations and necessary precautions for L2 students utilizing ChatGPT and suggests avenues for future research in this domain.

Keywords: ChatGPT, Artificial Intelligence (AI), English for Academic Purposes (EAP), Second Language (L2) Students

1 Introduction

OpenAI, a leading artificial intelligence (AI) research organisation in the United States, introduced ChatGPT, a freely accessible chatbot, on November 30, 2022. ChatGPT is an advanced linguistic AI model capable of summarising the structure of new texts (abstracts, conclusion, analysis methods, etc.), explaining abstract concepts or terms, detecting and correcting computer error codes, generating papers of various genres, and providing additional interactive features. The use of ChatGPT holds great potential for supporting teachers in cultivating English for Academic Purposes (EAP) writing skills for Second Language (L2) students.

Numerous studies have emphasised the challenges L2 students face when writing in English. Al-Gharabally discovered that L2 students often struggle in the initial stages of writing in English, but discussing difficulties during the writing process can effectively alleviate these challenges [1]. Hinkel identified grammatical inaccuracy as a primary factor contributing to non-native English speakers' poor writing skills, while Yang advocated for the efficacy of automated and timely grammatical feedback in improving students' writing abilities [2,3]. Hyland and Hyland further emphasised the value L2 students place on feedback in English writing through a literature review [4].

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Concurrently, numerous studies have demonstrated the positive influence of AI assistance, such as ChatGPT, on student learning. Firaina and Sulisworo interviewed five university lecturers, who reported that interactions with ChatGPT facilitated new ideas and knowledge acquisition and expedited the process of locating knowledge sources [5]. Wu conducted a dynamic evaluation analysis of college students' English writing using AI technology, finding that engagement with AI increased students' initiative in learning English. Additionally, AI-provided feedback enhanced students' self-correction abilities and decreased the time teachers spent on basic grammar correction [6].

Despite the growing body of research on AI-assisted instruction and English for Academic Purposes (EAP) instruction, there is a lack of literature on how can use ChatGPT to help EAP writing of L2 students. As artificial intelligence continues to revolutionise the field of education, the potential for tools like ChatGPT to assist L2 students in academic English writing is immense. By examining the current literature and exploring the potential benefits of ChatGPT for EAP learning, this paper aims to address the following research question:

1. What is the potential of ChatGPT in assisting L2 students' EAP writing?
2. What is the precaution of using ChatGPT when L2 students' EAP writing?

In the work, I will first outline the potential benefits of ChatGPT for L2 students learning EAP, as well as the necessary pedagogical approaches for maximising its effectiveness, drawing on the available empirical research in this field and its demonstrated potential. Subsequently, I will analyse common insights and questions arising from the research and propose recommendations for future research.

2 Literature Review

2.1 Main features of ChatGPT

ChatGPT, an AI model, is a large language model (LLM) that underwent comprehensive training using numerous data samples until September 2021 [7]. The primary capabilities of LLM include generating ideas and making decisions based on user inputs [8]. With regards to idea generation, LLM can produce text that adheres to specific styles based on the diverse requirements of users, and it can generate multiple types of text within the same context [9,10]. In terms of decision-making, the model is trained using significant volumes of human dialogue data, enabling it to engage with users through question-and-answer interactions, while also employing cross-analysis and linking of user inputs with the trained database to predict, classify, judge, and provide recommendations [7,8].

Builds on the foundation of LLM, ChatGPT can leverage its vast data samples from billions of web pages to perform a range of natural language processing (NLP) tasks across multiple languages [11]. NLP is an interdisciplinary field that combines artificial intelligence and linguistics to cater to the needs of individuals who require other languages for various activities [12]. By analysing the language context, meaning, and form of the text entered by users, NLP can generate meaningful sentences, paragraphs, or articles that align with their requirements. Thus, ChatGPT possesses exceptional interactive capabilities that enable it to cater to a diverse range of users' commands,

including multilingual text translation, grammar correction, text classification, information extraction from text, provision of information on various related topics, text writing interaction and other tasks [13]. However, it is worth noting that after September 2021, the ChatGPT data samples are not updated, which may cause some information to become outdated, thereby reducing its reliability [8]. Additionally, large-scale language models, including ChatGPT, are unable to discern whether the data samples contain biased information related to factors such as racial or gender discrimination. Thus, when interacting with users, these models may inadvertently generate biased responses [14].

2.2 Review of studies on AI and ChatGPT in assisting L2 students

The increasing popularity of AI in the field of education means that teachers and students find AI helpful in teaching and learning. Su, Miao, and Man used AI to correct the English writing of 200 Chinese students for one semester [15]. The study found that using AI to assist English writing can not only reduce students' English writing anxiety, but also improve students' writing ability. Similarly, Kim compared the effects of AI chatbots and artificial chats on the English learning of 70 Korean students [16]. The study found that AI chatbots can give students faster feedback and improve students' grammar skills. Regarding the academic writing of L2 students, Nazari, Shabbir, and Setiawan tested the effectiveness of AI writing tools for non-native English-speaking students' academic writing, revealed that the feedback and assessment capabilities of AI writing tools can promote the academic behaviour and attitudes of students [17].

As an excellent AI tool, ChatGPT can help L2 students' English writing more effectively. Lim found by observing the interaction between students and ChatGPT that ChatGPT can not only provide students with new knowledge, but also generate different opinions by encouraging students to ask different questions on the same question, which is conducive to cultivating students' critical thinking [18]. In addition, AlAfnan, Dishari, Jovic, and Lomidze believe that in the initial stage of students' writing, ChatGPT can help students generate ideas and provide students with case analysis [19]. Even for students with communication disabilities, ChatGPT can respond to incomplete prompts accordingly [20]. Aljanabi, Ghazi, Ali and Abed also showed that ChatGPT can assist students in research in academic writing, including providing examples of essay drafts in any genre, with citations, allowing students to focus on understanding, analysing, and improving themselves academic writing [21].

However, several studies have found that some students are immersed in the high efficiency brought by AI such as ChatGPT, and do not realise that they may violate academic integrity [22]. In addition, as per the findings, upon reviewing responses of ChatGPT, it was revealed that the provision of reference texts by ChatGPT may give rise to issues including but not limited to difficulty in locating the source, incorrect identification of the source, and erroneous date attribution [23]. There exists a possibility that students may become overly reliant upon ChatGPT, which in turn could impede their independent ability to investigate and come to their own conclusions or solutions. Furthermore, in cases where students lack a clear understanding of their respective

fields of study, they may be susceptible to being misguided by certain accurate information provided by ChatGPT [24].

2.3 Challenges in L2 Students' EAP Writing

According to Hyland and Hamp-Lyons, EAP is a form of language learning that is geared towards meeting the communication and expression needs of individuals in an academic setting [25]. For L2 students, EAP is often viewed as a necessary skill to enable their participation in specific academic or cultural exchanges, making it a top priority. And EAP writing is an essential skill for L2 students pursuing higher education in English-speaking countries [26]. However, for L2 students, lack of vocabulary, unfamiliarity with grammatical structures, cultural differences and other factors form obstacles to EAP writing, making it difficult for L2 students to express their ideas accurately or even express themselves in English writing, English communication and other activities, resulting in writing anxiety [27]. A scholar undertook an interview survey focusing on the EAP writing skills of L2 students who had an English proficiency level ranging from IELTS 6.5-7.5. The survey revealed that 20 of 27 students felt they lacked adequate academic vocabulary, were unable to correctly use academic terminology, and had difficulty identifying the appropriate tense for their essay [28]. Besides, a study involved conducting interviews with five Bengali-speaking students to investigate the relationship between grammar and writing in the context of English for Academic Purposes (EAP) writing [29]. The findings indicated that these students believed that linking grammar and writing would be beneficial for their EAP writing. However, they also reported experiencing difficulty in remembering all the rules of grammar and knowing when to apply them. Therefore, the purpose of this study is to explore the potential of ChatGPT in assisting L2 students' EAP writing and the precaution of using ChatGPT when L2 students' EAP writing.

3 Method

The research design for this study is a narrative qualitative research approach. The approach focuses on collecting and analysing data in the form of narratives to gain a deep understanding of the answers of ChatGPT in assisting students with EAP writing. The method used to interact with ChatGPT is a structured interaction approach, which involves asking specific questions related to the EAP writing process.

3.1 Participant

The participant for this study is ChatGPT, a large language model trained by OpenAI. ChatGPT was selected based on its expertise in language processing and its ability to assist students with EAP writing.

3.2 Data Collection

The primary data collection method for this research will involve a structured interaction with ChatGPT to gather responses on assisting students with EAP writing. The interaction will be designed to focus on the EAP writing process and will be conducted through a narrative qualitative research approach.

3.3 Data Analysis

The data collected from the structured interaction with ChatGPT was analysed using a narrative qualitative research approach. The data analysis process involved the identification of key themes and patterns in the data, and the interpretation of these themes in relation to the research question. The data was coded and categorised, and the findings were presented in a screenshot of dialogue.

3.4 Ethical Considerations

Given that ChatGPT is an artificial intelligence language model, there were no concerns related to informed consent or confidentiality. However, it was important to ensure that the research was conducted in a responsible and ethical manner, and that the findings were interpreted in a way that was respectful and beneficial to students and educators.

4 Results and Discussion

4.1 EAP Writing Idea Generation

In the context of EAP writing, L2 learners might encounter difficulties generating ideas. To enhance brainstorming in EAP writing effectively, learners can pose queries to ChatGPT, such as: "I am an EAP L2 student, my EAP writing topic is [Insert your topic here], could you help generating some ideas for my EAP writing?"(see Figure 1).

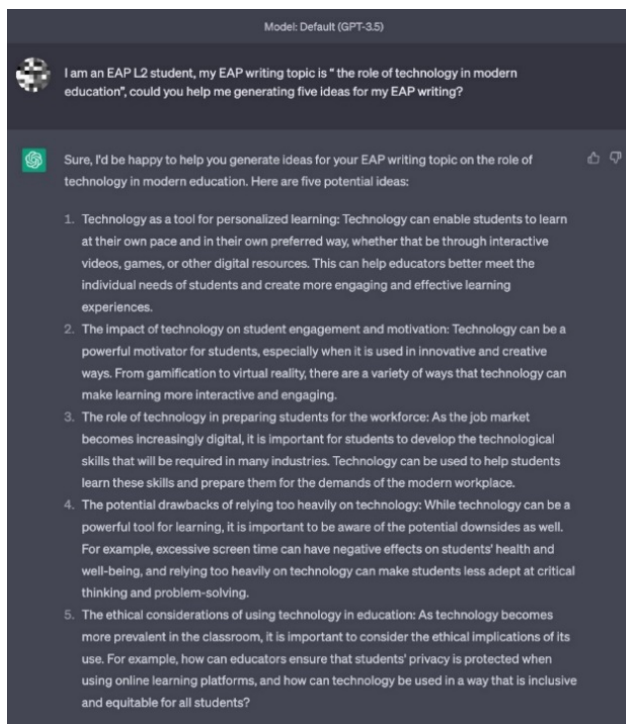


Fig. 1. EAP Writing Idea Generation [Owner-draw]

Through ChatGPT responses, it becomes evident that the ChatGPT can not only supply writing concepts related to the subject matter but also offer corresponding elucidations to aid L2 students' comprehension. When posing questions, by presenting an explicit topic and specifying the required support, ChatGPT is better positioned to deliver pertinent ideas and guidance for EAP writing. After receiving responses, L2 learners should also critically evaluate and employ creativity based on the suggestions provided. Given that ChatGPT dataset concludes in 2022, the ideas furnished may not align with current popular trends, thereby necessitating more proactive thinking from L2 students. Nevertheless, through interaction with ChatGPT, L2 learners can more efficiently refine their writing topics.

4.2 EAP Vocabulary Expansion

A review of the literature reveals that a majority of EAP L2 learners grapple with EAP writing, primarily due to an inadequate academic vocabulary. To effectively and efficiently mitigate this challenge, learners can consult ChatGPT by asking: "I am an EAP L2 student, could you expand my vocabulary in the field of [Insert your field here] by providing 5 words, along with their definitions and examples of how to use them in a sentence?"(see Figure 2).

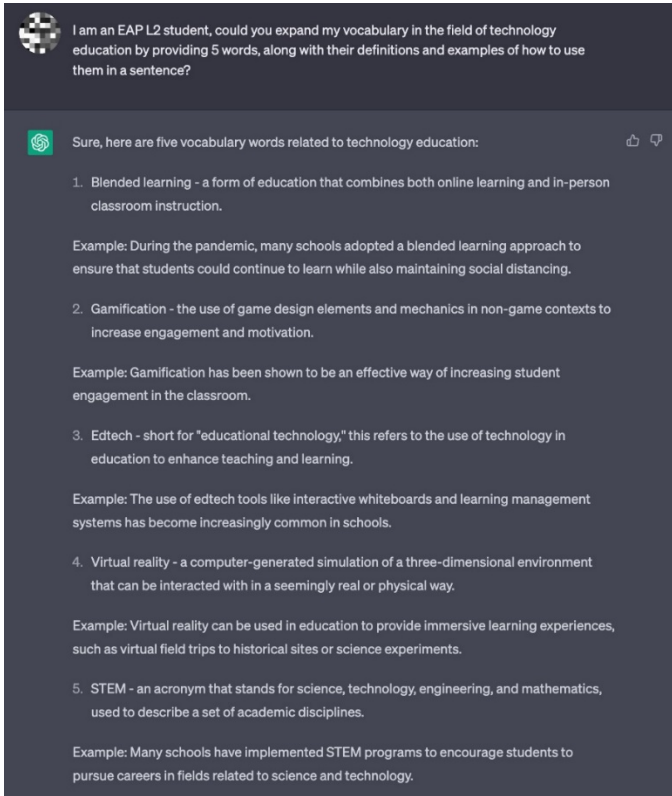


Fig. 2. EAP Vocabulary Expansion [Owner-draw]

From ChatGPT responses, it becomes apparent that the AI can not only supply relevant EAP vocabulary for L2 students' fields of study but also include illustrative examples to aid comprehension. A subsequent evaluation of the provided vocabulary and examples demonstrates ChatGPT relatively high accuracy. Nonetheless, when employing these terms in the future, L2 learners should maintain a critical perspective towards the provided responses. This approach will not only foster critical thinking skills but also facilitate EAP vocabulary acquisition.

4.3 Literature Resources

To assist with EAP writing process, L2 students may inquire with ChatGPT by asking, "Can you provide some relevant literature resources on the topic of [Insert your topic here]?" (see Figure 3). If the literature and sources provided by ChatGPT are deemed to be accurate and reliable, this can enhance the efficiency of the literature review process for L2 students.

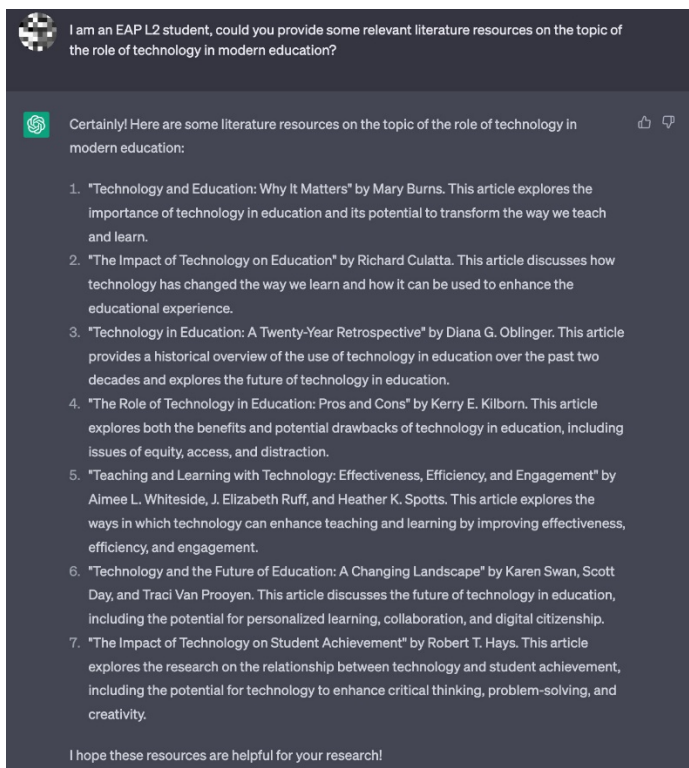


Fig. 3. Literature Resources [Owner-draw]

A review of the literature provided by ChatGPT revealed that Articles 1, 2, 4, 5, 6, and 7 do not exist, while the author in Article 3 were incorrect. The high rate of errors in the literature provided by ChatGPT may inadvertently increase the pressure and time required for L2 students' EAP writing. Therefore, it is crucial for L2 students to carefully evaluate the accuracy and reliability of any literature resources provided by ChatGPT. It is important for L2 students to exercise caution when utilizing ChatGPT to obtain literature resources.

4.4 Instant EAP Writing Feedback

When composing EAP texts, L2 learners can significantly enhance their writing skills by receiving timely feedback. Learners can solicit input from ChatGPT by asking: "As an EAP L2 student, could you provide feedback on grammar, vocabulary, sentence structure, and coherence for my essay: [Insert your paragraph here]?" (see Figure 4).

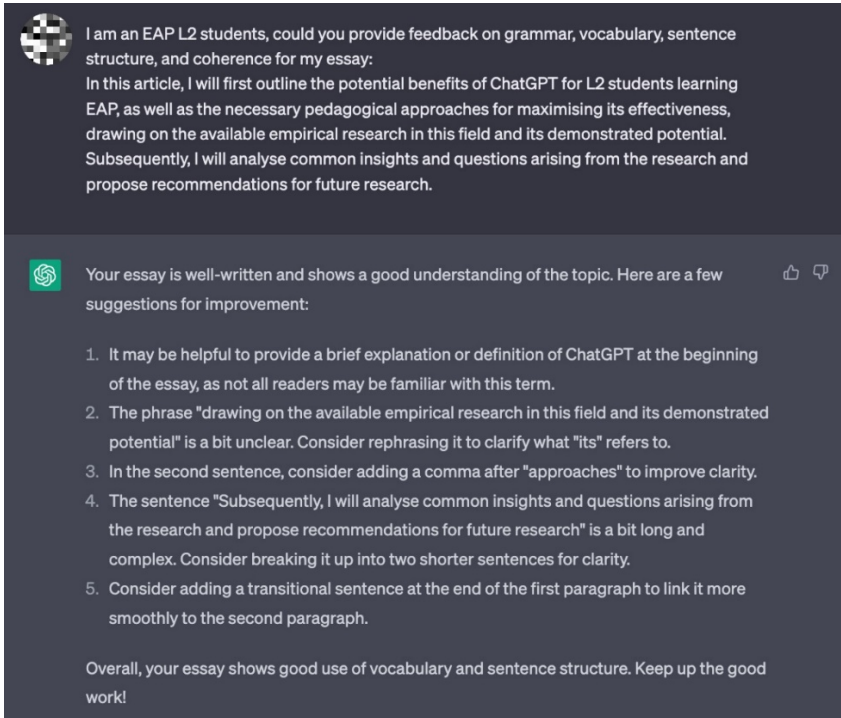


Fig. 4. Instant EAP Writing Feedback [Owner-draw]

ChatGPT responses reveal that the AI can not only deliver prompt feedback but also address specific elements, such as grammar, vocabulary, sentence structure, and coherence. This comprehensive feedback not only effectively assists L2 learners in EAP writing but also bolsters their confidence following revisions, helping them avoid certain errors. However, L2 students' EAP writing should not solely rely on ChatGPT feedback and should also incorporate guidance from instructors and peers. Additionally, it is crucial for L2 learners to critically assess the feedback provided by ChatGPT.

4.5 Confidence Building

Upon posing the question to ChatGPT: "As an L2 student, how can I build confidence when using ChatGPT to support my EAP writing?" (see Figure 5), it was discovered that L2 learners can benefit from the following interaction with ChatGPT throughout the EAP writing process.

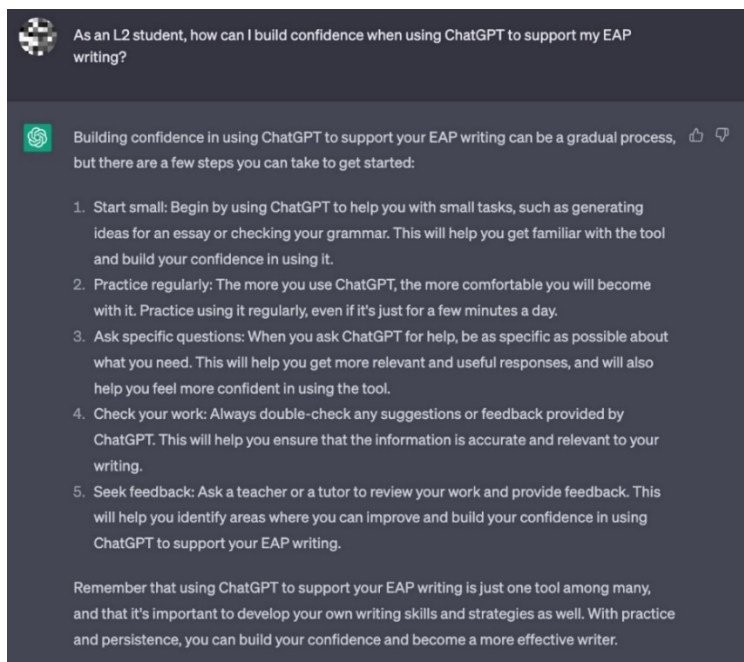


Fig. 5. Confidence Building [Owner-draw]

By consistently engaging with ChatGPT and actively participating in the learning process during EAP writing, L2 students can progressively enhance various writing skills, such as EAP vocabulary, grammatical accuracy, sentence structure, textual coherence, and idea generation. Consequently, interacting with ChatGPT contributes to bolstering the self-confidence of L2 learners.

5 Conclusion

In this study, the research questions were addressed through engagement with ChatGPT. ChatGPT could offer immediate feedback on grammar, vocabulary, and sentence construction, allowing L2 learners to enhance their writing efficiently. ChatGPT could support EAP vocabulary expansion and comprehension of context-specific terminology by providing definitions and illustrations. It aided L2 students in their EAP writing endeavours by offering writing prompts, outlining potential arguments, and presenting relevant examples. Interaction with ChatGPT bolsters L2 students' confidence in EAP writing by providing real-time assistance and feedback. However, ChatGPT comprehension of context and specific EAP writing requirements may be limited, resulting in potentially inaccurate or irrelevant information. While it can rapidly deliver feedback on grammar and vocabulary, it might not always identify all errors or offer targeted improvement suggestions. ChatGPT may struggle to grasp the cultural background of L2 learners, which could lead to a lack of unique EAP writing tone and style.

Given that ChatGPT is trained on a static dataset, it may not encompass the most recent language trends or EAP-related vocabulary. Overdependence on ChatGPT for EAP writing tasks could inhibit the growth of students' critical thinking, research, and writing abilities.

Thus, L2 students engaging with ChatGPT for collaborative EAP writing should avoid relying solely on the tool and focus on cultivating their critical thinking and writing skills. Furthermore, given ChatGPT high error rate when providing literature sources, students must corroborate data using trustworthy sources to ensure academic writing accuracy. L2 learners should also endeavour to develop their unique writing style instead of merely depending on ChatGPT output. On the other hand, responses to research inquiries remain fluid. It is essential to monitor L2 students' progress while utilizing ChatGPT over an extended duration in order to assess the ChatGPT long-term efficacy in EAP writing. In conclusion, incorporating ChatGPT as an additional writing tool in EAP has the potential to significantly help L2 students. ChatGPT can greatly aid in the growth of L2 learners' writing abilities by promoting idea generation, vocabulary expansion, the provision of literature resources, quick writing feedback, and confidence building. However, it is crucial to be aware of the AI's limits, such as its knowledge ceiling, possibility for inaccuracy, and the necessity for rigorous review of its recommendations. L2 students must therefore rely on advice from teachers, peers, and their own critical thinking skills in addition to ChatGPT, even if it can be a very useful tool. L2 learners can effectively improve their EAP writing skills and have more academic success by combining the usage of ChatGPT with individual learning.

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