

ChatGPT for Language Teaching and Learning

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Abstract

In this technology review, we explore the affordances of the generative AI chatbot ChatGPT for language teaching and learning. In addition to this, we also present debates and drawbacks of ChatGPT. Finally, we present the digital competencies teachers and learners require to use this chatbot ethically and effectively to support language learning.

Keywords

ChatGPT, language, teaching, learning, AI, artificial intelligence, chatbot, english language teaching, english language learning

Intelligent chatbots have caught the attention of language educators because they can interact with learners in their target language instantly and realistically (Fryer et al., 2020; Lee et al., 2020). A chatbot is a computer application that simulates human-like, natural conversations with users through text and/or voice (Ashfaq et al., 2020). It can also offer synchronous support and tutoring (Kerly et al., 2007). Traditional chatbots, also known as rule-based chatbots, are based on a set of pre-defined guidelines extracted from external knowledge. Therefore, they are not so “intelligent” and cannot answer questions that they were not programmed to answer. Other state-of-the-art chatbots

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leverage advanced artificial intelligence (AI) techniques such as natural language processing (NLP), machine learning (ML), and deep learning (DL); these AI-powered chatbots learn how to respond to user inquiries based on a vast human language dataset (Jiang et al., 2022). Therefore, they can communicate with users intelligently, continuously learn from prior interactions, improve over time, and act as tireless language-learning assistants (Fryer et al., 2019; Kim, 2018).

Rich input is essential for successful second language acquisition. AI-powered chatbots can provide linguistic input and daily conversation practice (Huang et al., 2022), stimulate language learners' interest (Fryer et al., 2017; Gallacher et al., 2018; Kohnke, 2022a), and contribute to their overall growth (Kim, 2019; Kim et al., 2019; Kohnke, 2022b). Moreover, they can highlight important knowledge and answer learners' questions to help them notice and grasp linguistic features (Schmidt, 1990). Because these chatbots are available 24/7, students can practise their language skills anytime and anywhere (Haristiani, 2019; Winkler and Soellner, 2018). This real-time assistance enhances learning by creating opportunities to interact (Ellis, 1999) and providing learners with opportunities to modify their output in communication (Mackey, 2012). If a learner finds the input challenging, AI-powered chatbots can adjust the proficiency level, provide personalized learning materials, and suggest customized learning paths (Kuhail et al., 2023). These chatbots can provide a range of expressions, questions, and vocabulary which human language partners may lack (Huang et al., 2022), and facilitate an authentic, interactive language-learning environment (Chiu et al., 2023).

Additionally, AI-powered chatbots can conduct formative assessments and provide immediate feedback (Huang et al., 2022; Kuhail et al., 2023), which are essential components of successful language acquisition. Previous research has found that chatbots engage language learners, expand their language capabilities, and help them sustain their motivation (Kohnke, 2023; Smutny and Schreiberova, 2020). Other advantages of chatbots are that they diminish shyness among language learners (Fryer and Carpenter, 2006) and reduce the perceived transactional distance between learners and teachers (Kohnke, 2022a).

One of the most advanced AI-powered chatbots is ChatGPT ("generative, pre-trained transformer"), which was designed by the Microsoft-backed company OpenAI and released in November 2022. This technology improves on the automated speech recognition, NLP, and limited AI used by digital assistants, such as Siri and Alexa, to perform simple automatic tasks. For example, Siri and Alexa use ML to provide information and execute specific tasks upon request (e.g., turn on the radio, check the weather forecast). In contrast, ChatGPT is designed to engage in back-and-forth conversations with users. Although chatbots have been used in educational settings since the early 1970s (Huang et al., 2022; Kim et al., 2022), ChatGPT's ability to realistically mimic human conversation opens a new and exciting avenue in language learning. The potential of ChatGPT extends far beyond what can be presented in this brief article. However, we hope to provide some ideas for how to utilize ChatGPT pedagogically and highlight some essential considerations for users.

As of November 2022, ChatGPT is available in beta mode through chat.openai.com and can be accessed by setting up a free account. However, it is not available in every country at the time of publication. A paid premium version of ChatGPT is available at the time of writing, and ChatGPT-4 was published in March of 2023.

Affordances and Pedagogical Benefits

ChatGPT supports language learning by simulating authentic interactions. It can identify the meaning of a word in context, correct and explain language mistakes, create texts in various genres (e.g., emails, stories, recipes), develop quizzes, annotate texts, and offer dictionary definitions, example sentences, and translations.

When a teacher assigns learners a text, they may not understand the meaning of certain words in context. Figure 1 shows how ChatGPT can explain these terms and continue the interaction by answering follow-up questions. Learners can also ask for an explanation in their first language (e.g., Chinese).



Figure 1. ChatGPT response to questions about the meaning of a word in English and Chinese.

Furthermore, students can use ChatGPT to obtain dictionary definitions and examples. For example, it can define a word, identify its part of speech, provide sample sentences, and offer additional meanings (Figure 2).

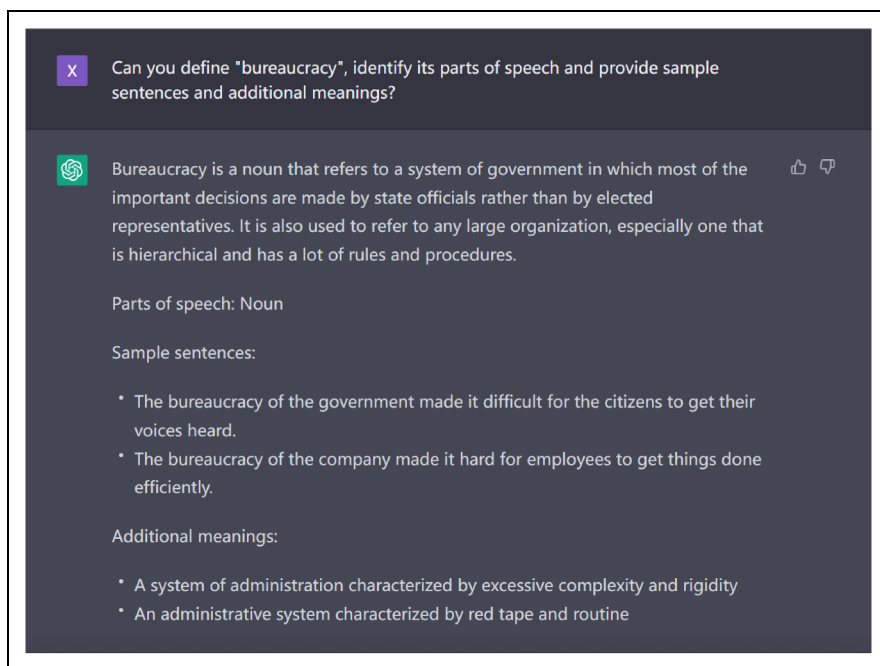


Figure 2. ChatGPT definitions and sample sentences.

ChatGPT can also be used to write dialogue or produce various genres of text relating to a single topic. To illustrate, it can help a student write an advertisement for an electric company (Figure 3), an email to a friend about how to save on electricity (Figure 4), and/or a dialogue between two people about rising electricity prices (Figures 5).

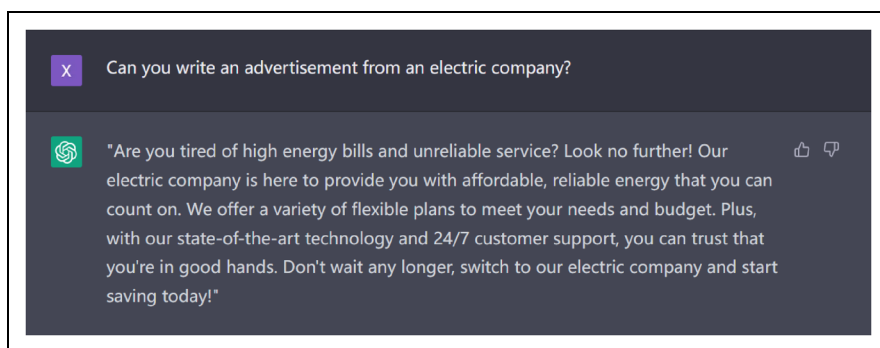


Figure 3. ChatGPT response to a request to write an advertisement.

ChatGPT can then adjust the complexity of the dialogue to make it more suitable for beginners or advanced learners (Figure 6). This would allow teachers to differentiate materials for their students. It can also rewrite the dialogue in another language (Figure 7) for students to translate later.

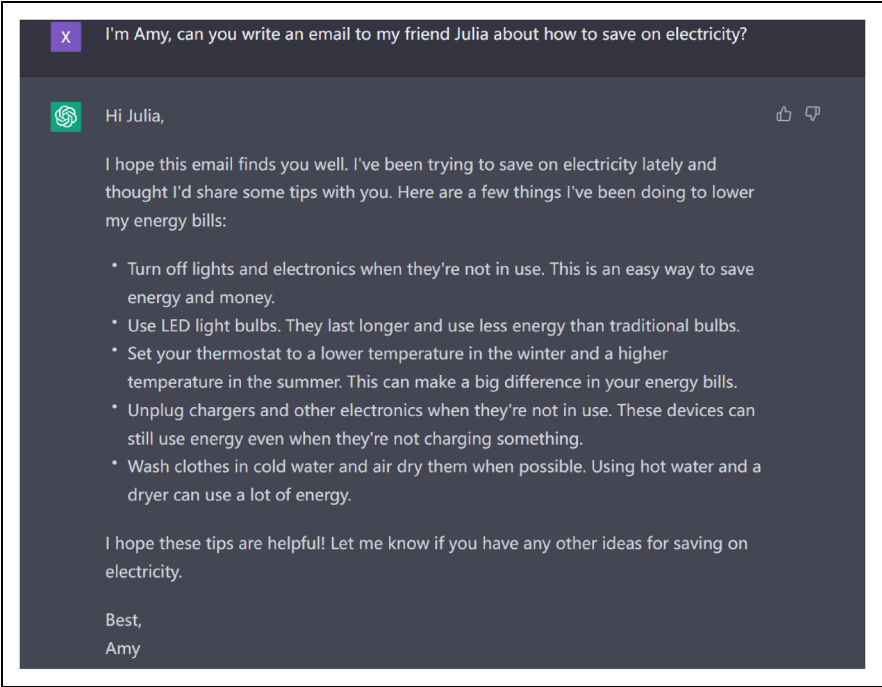


Figure 4. Email generated by ChatGPT.

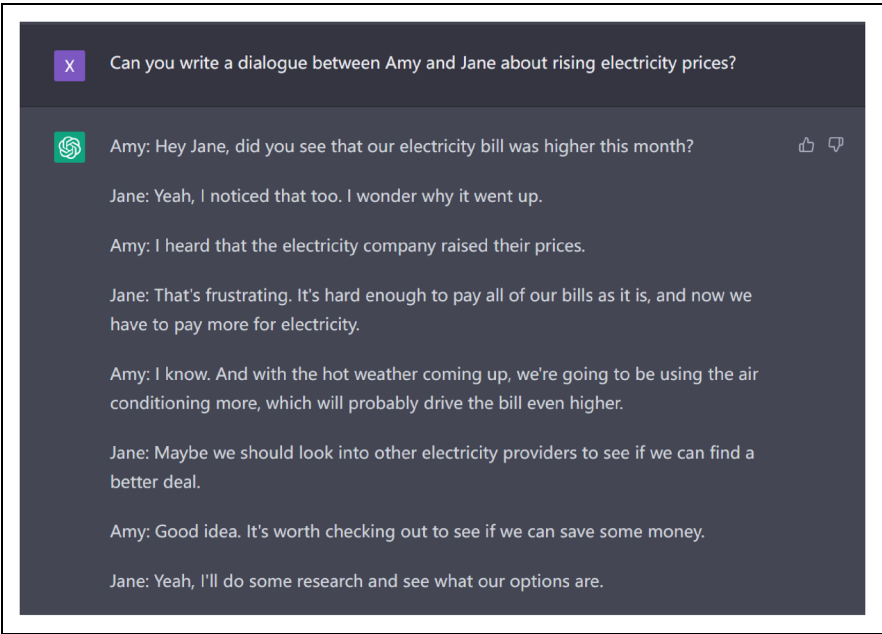
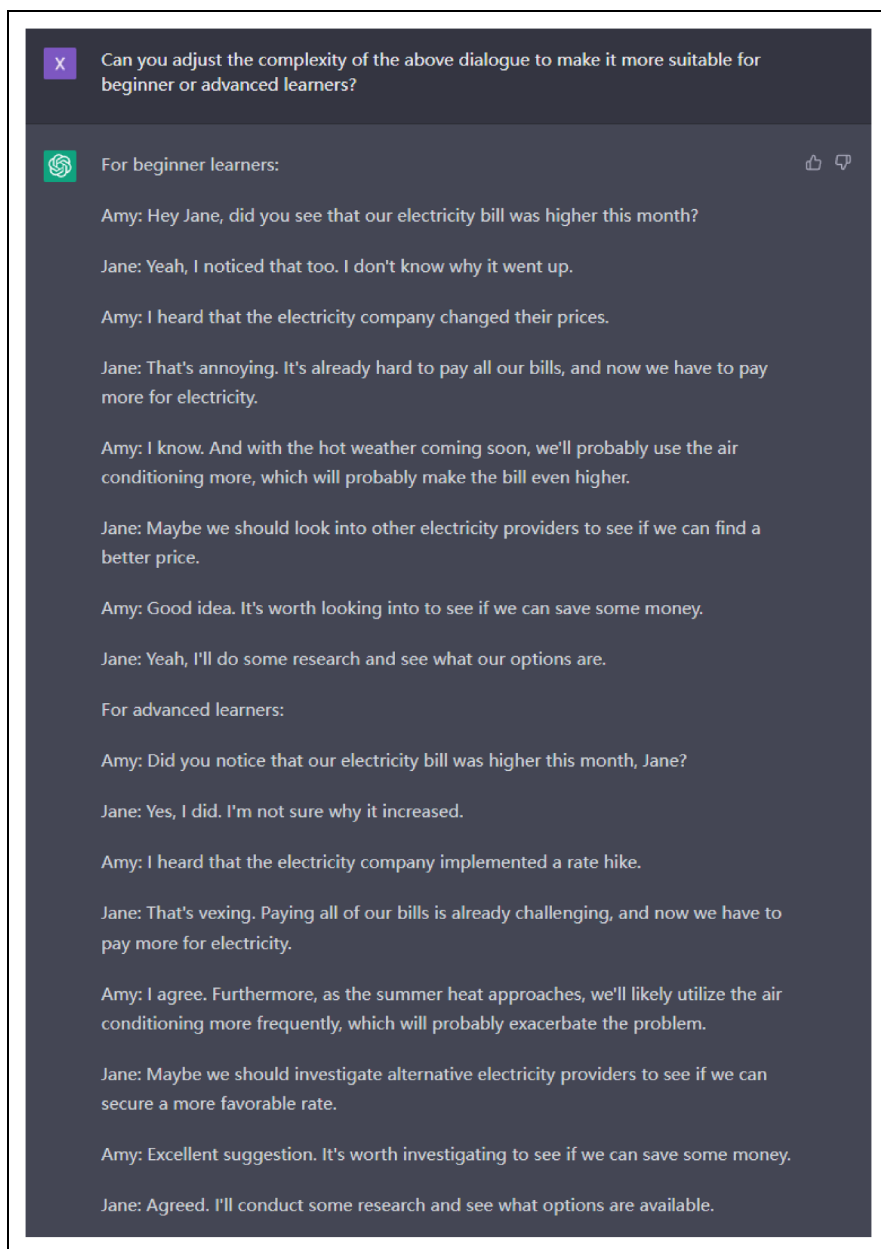


Figure 5. Dialogue generated by ChatGPT.



X Can you adjust the complexity of the above dialogue to make it more suitable for beginner or advanced learners?

For beginner learners:

Amy: Hey Jane, did you see that our electricity bill was higher this month?

Jane: Yeah, I noticed that too. I don't know why it went up.

Amy: I heard that the electricity company changed their prices.

Jane: That's annoying. It's already hard to pay all our bills, and now we have to pay more for electricity.

Amy: I know. And with the hot weather coming soon, we'll probably use the air conditioning more, which will probably make the bill even higher.

Jane: Maybe we should look into other electricity providers to see if we can find a better price.

Amy: Good idea. It's worth looking into to see if we can save some money.

Jane: Yeah, I'll do some research and see what our options are.

For advanced learners:

Amy: Did you notice that our electricity bill was higher this month, Jane?

Jane: Yes, I did. I'm not sure why it increased.

Amy: I heard that the electricity company implemented a rate hike.

Jane: That's vexing. Paying all of our bills is already challenging, and now we have to pay more for electricity.

Amy: I agree. Furthermore, as the summer heat approaches, we'll likely utilize the air conditioning more frequently, which will probably exacerbate the problem.

Jane: Maybe we should investigate alternative electricity providers to see if we can secure a more favorable rate.

Amy: Excellent suggestion. It's worth investigating to see if we can save some money.

Jane: Agreed. I'll conduct some research and see what options are available.

Figure 6. Adjusted language complexity by ChatGPT.

ChatGPT can be used to prepare vocabulary notes in both the target and primary language (Figure 8)—for instance, to help learners understand a lesson about a short story.



Figure 7. Chinese translation of dialogue by ChatGPT.

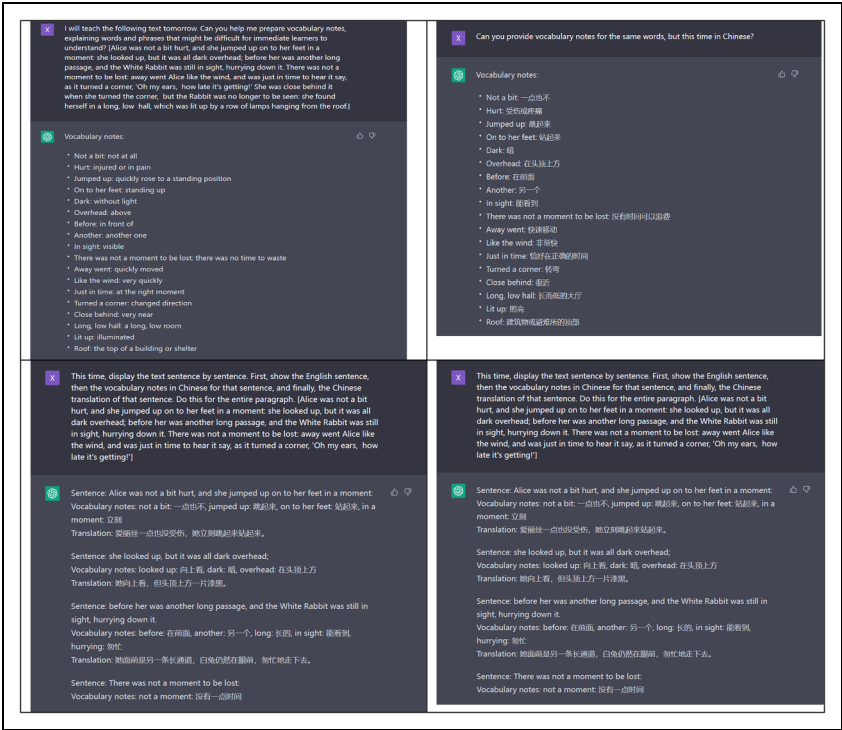


Figure 8. Vocabulary notes and explanations of words and phrases generated by ChatGPT.

Teachers can also ask ChatGPT to generate comprehension and expansion questions (open-ended or multiple-choice) to accompany reading tasks (Figure 9).

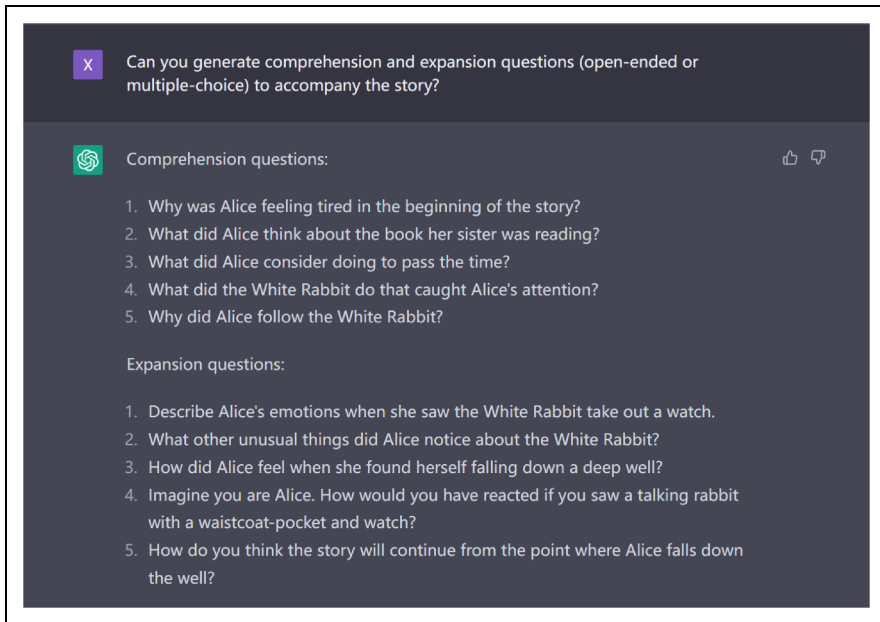


Figure 9. Comprehension and expansion questions generated by ChatGPT.

Appendix 1 offers some suggestions for how students can use ChatGPT to improve their English. It should be noted that the quality of the responses depends on the quality of the questions. Thus, we recommend that teachers or students rephrase their questions if they are not satisfied with the responses.

Debates and Drawbacks Related to ChatGPT

Since the beta release of ChatGPT in November 2022, there has been considerable debate about its impact on the field of education. While many commentators recognize its potential as a tool to support education and potential benefits as a disruptor of the status quo (e.g., McMinn, 2023), others highlight its drawbacks and risks.

One debate centres around the ethical use of ChatGPT in education, including fears that it could be used for cheating and concerns about how it will impact assessment (Cassidy, 2023). Recently, Turnitin announced the introduction of an upgrade that recognizes text written by artificial intelligence. Although digital tools that claim to detect AI-generated text are being developed (e.g., GPTZero), this response may lead to a game of “cat and mouse” and does not address the fundamental utility of ChatGPT or the ethical use of technology in general. Similarly, there are questions about the originality of ChatGPT’s responses. ChatGPT does not provide any sources or citations. It could be argued that its responses are not entirely original but paraphrases of sources that have not been appropriately cited (i.e., plagiarism).

A second debate revolves around the accuracy of chatbot responses. While OpenAI cautions that ChatGPT’s responses may not be accurate and gives users the option to provide feedback (thumbs-up or thumbs-down), the authoritative nature of the responses can lead users to take them at face value. Bowman (2022) notes, “There are still many cases where you ask [ChatGPT] a question, and it’ll give you a very impressive-sounding answer that’s just dead wrong.” For example, if a student asks ChatGPT to correct and explain their grammatical mistakes, it may provide a response like the one in Figure 10.

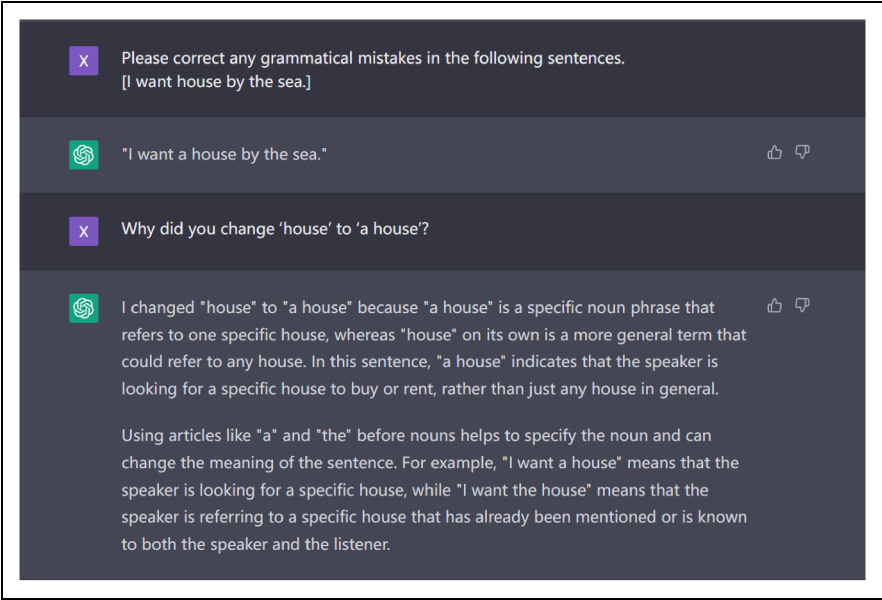


Figure 10. Interaction about grammar on ChatGPT.

However, the explanation provided by ChatGPT is wordy, repetitive, and inaccurate. It uses “specific” to refer to both “a” and “the,” and a singular noun like “house” can never be used in English without an article. Because its responses sound definitive, with little or no hedging, users may assume that the chatbot is correct even when it is wrong. Particularly, this could be an issue for young learners who may not be able to “fact-check” the responses ChatGPT generates.

A third debate focuses on the cultural bias inherent in the source database and algorithms (Rettberg, 2022). Most of the text in the database is derived from an English corpus and then translated into target languages (e.g., Chinese, Japanese). In addition, it includes many words that are written more often than spoken. These issues are particularly concerning in language education, as students are likely to come from diverse cultural backgrounds and may be unaware that ChatGPT and other AI-driven tools are not culturally neutral.

These debates have led to strong reactions from certain governmental and educational institutions. For example, the New York City Department of Education blocked access to ChatGPT on school devices due to “concerns regarding the safety and accuracy of content” (Elsen-Rooney, 2023), and universities in Australia have reportedly returned to pen-and-paper exams after students were caught using ChatGPT to write essays (Cassidy, 2023).

Digital Competence Needed to use ChatGPT

The reactions of governments and educational institutions, however, are not the best way to address the issues with ChatGPT. ChatGPT is here to stay, and other advanced AI-driven digital tools are being released (e.g., you.com, an AI-driven search engine). Hockly (2023) highlights the need to prioritize the principled use of AI-driven educational technology and develop strategies to manage its drawbacks. Therefore, teachers and students must develop the specific digital competencies needed to use such tools in ways that are pedagogically beneficial and ethical. This will involve learning how to interact with ChatGPT and facilitate learning tasks that capitalize on its affordances, such as those described in this article. It also requires a critical awareness of the drawbacks and risks of ChatGPT. While language teachers have become more digitally competent due to the requirement to engage in online teaching during the COVID-19 pandemic (Moorhouse, 2023), teachers need more skills to utilize ChatGPT successfully than they currently possess. Table 1 provides an overview of the digital competence teachers need to use ChatGPT, using a conceptual model developed by Instefjord and Munthe (2017).

In addition, there is now a greater need to focus on developing students’ digital competence. Traditionally, educational institutions have helped students acquire basic technological proficiency, such as the ability to use e-platforms (e.g., Padlet, Google Docs), e-portfolios, and video production tools. However, in response to rapid digital advancements, scholars have highlighted the need for more advanced digital competence among students (e.g., Jones and Hafner, 2022). The release of ChatGPT makes this even more urgent. As with teachers, for students to use ChatGPT as a learning tool, they need to recognize its limitations, consider how to use it safely and with integrity, and understand their responsibilities as digital citizens.

Finally, education departments, universities, and schools must draw up guidelines for using such tools, modify their teaching and assessment practices, and consider how to best prepare students for a world where AI-driven digital tools are a normal part of daily life.

Table 1. Specific Forms of Digital Competence Needed to use ChatGPT.

Technological proficiency	<ul style="list-style-type: none">• Be aware of the features of ChatGPT• Understand how ChatGPT works• Construct effective prompts and interact with ChatGPT• Troubleshoot challenges using ChatGPT in the classroom• Stay up-to-date with changes to ChatGPT
Pedagogical compatibility	<ul style="list-style-type: none">• Think about and plan ways to use ChatGPT to enhance or transform language teaching and learning tasks• Implement tasks that use ChatGPT• Guide learners to use ChatGPT for self-directed learning
Social awareness	<ul style="list-style-type: none">• Have a critical awareness of the drawbacks of ChatGPT and consider them when planning and implementing tasks• Inform learners of the risks, ethical issues, and drawbacks of ChatGPT

Conclusion


The current technology review has provided some initial ideas on how ChatGPT can support language teaching and learning. It has offered some examples of learning tasks that teachers and learners who are new to ChatGPT can use. It has also identified some key debates and drawbacks related to ChatGPT and provided possible strategies to address them. We argue that AI-driven digital tools are here to stay, so language teachers and students need advanced digital competence to capitalize on them and successfully navigate their risks and drawbacks.


ChatGPT is a versatile and valuable tool with significant potential to promote engaging and adaptive language learning. We encourage language teachers to explore the pedagogical possibilities of ChatGPT and use it to enrich education in theoretically-sound and principled ways.

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References

- Ashfaq MW, Tharewal S, Iqbal S, et al. (2020, October) A review on techniques, characteristics and approaches to an intelligent tutoring chatbot system. In 2020 International Conference on Smart Innovations in Design, Environment, Management, Planning and Computing (ICSIDEMPC) (pp. 258–262). IEEE.
- Bowman E (December 19, 2022) A new AI chatbot might do your homework for you. But it's still not an A+ student. NPR. Retrieved January 5, 2022.
- Cassidy C (2023) Australian universities to return to 'pen and paper' exams after students caught using AI to write essays. The Guardian Online. Available at <https://www.theguardian.com/australia-news/2023/jan/10/universities-to-return-to-pen-and-paper-exams-after-students-caught-using-ai-to-write-essays> (Accessed 28/1/23).
- Chiu TKF, Moorhouse LM, Chai CS, et al. (2023) Teacher support and student motivation to learn with Artificial Intelligence (AI) based chatbot. *Interactive Learning Environment*. Epub Online. DOI: 10.1080/10494820.2023.2172044
- Ellis R (1999) *The Study of Second Language Acquisition*. Shanghai: Shanghai Foreign Languages Education Press.
- Elsen-Rooney M (2023) NYC education department blocks ChatGPT on school devices, networks. Chalkbeat New York. Available at: <https://ny.chalkbeat.org/2023/1/3/23537987/nyc-schools-ban-chatgpt-writing-artificial-intelligence> (Accessed 28/1/23)
- Fryer L and Carpenter R (2006) Bots as language learning tools. *Language Learning & Technology* 10(3): 8–14.
- Fryer LK, Ainley M, Thompson A, et al. (2017) Stimulating and sustaining interest in a language course: an experimental comparison of chatbot and human task partners. *Computers in Human Behavior* 75: 461–468.

- Fryer LK, Coniam D, Carpenter R, et al. (2020) Bots for language learning now: Current and future directions. *Language Learning & Technology* 24(2): 8–22. Retrieved from <http://hdl.handle.net/10125/44719>
- Fryer LK, Nakao K and Thompson A (2019) Chatbot learning partners: Connecting learning experiences, interest and competence. *Computers in Human Behavior* 93: 279–289.
- Gallacher A, Thompson A, Howarth M (2018) “My robot is an idiot!” – Students’ perceptions of AI in the L2 classroom. In: Taalas P, Jalkanen J, Bradley L, et al. (eds) *Future-proof CALL: Language learning as exploration and encounters – short papers from EUROCALL 2018* (pp. 70–76). Research-publishing.net. DOI: 10.14705/rpnet.2018.26.815
- Haristiani N (2019) Artificial intelligence (AI) chatbot as language learning medium: an inquiry. *Journal of Physics: Conference Series* 1387(1): 202.
- Hockly N (2023) Artificial Intelligence in English language teaching: The good, the bad and the ugly. *RELC Journal* 54(2): 445–451. <https://doi.org/10.1177/00336882231168504>
- Huang W, Hew KF and Fryer LK (2022) Chatbots for language learning – are they really useful? A systematic review of chatbot-supported language learning. *Journal of Computer Assisted Learning* 38(1): 237–257.
- Instefjord E and Munthe E (2017) Educating digitally competent teachers: a study of integration of professional digital competency in teacher education. *Teaching and Teacher Education* 67: 37–45.
- Jiang H, Cheng Y, Yang J, et al. (2022) AI-powered chatbot communication with customers: dialogic interactions, satisfaction, engagement, and customer behavior. *Computers in Human Behavior* 134: 107329.
- Jones R and Hafner C (2022) *Understanding Digital literacies: A practical introduction*. New York: Routledge.
- Kerly A, Hall P and Bull S (2007) Bringing chatbots into education: towards natural language negotiation of open learner models. *Knowledge-Based Systems* 20(2): 177–185.
- Kim H, Shin D, Yang H, et al. (2019) A study of AI chatbots as an assistant tool for school English curriculum. *Journal of Learner-Centered Curriculum and Instruction* 19(1): 89–110.
- Kim H, Yang H, Shin D, et al. (2022) Design principles and architecture of a second language learning chatbot. *Language Learning & Technology* 26(1): 1–18. <http://hdl.handle.net/10125/73463>
- Kim NY (2018) A study on chatbots for developing Korean college students’ English listening and reading skills. *Journal of Digital Convergence* 16(8): 19–26.
- Kim NY (2019) A study on the use of artificial intelligence chatbots for improving English grammar skills. *Journal of Digital Convergence* 17(8): 37–46.
- Kohnke L (2022a) A pedagogical chatbot: A supplemental language learning tools. *RELC Journal*. Epub Online. DOI: 10.1177/00336882211067054
- Kohnke L (2022b) A qualitative exploration of student perspectives of chatbot use during emergency remote teaching. *International Journal of Mobile Learning and Organisation* 16(4): 475–488. DOI: 10.1504/IJMLO.2022.125966
- Kohnke L (2023) L2 learners’ perceptions of a chatbot as a potential independent language learning tool. *International Journal of Mobile Learning and Organisation* 17(1/2): 214–226. DOI: 10.1504/IJMLO.2023.10053355
- Kuhail MA, Alturki N, Alramlawi S, et al. (2023) Interacting with educational chatbots: a systematic review. *Education and Information Technologies* 28: 973–1018.
- Lee JH, Yang H, Shin D, et al. (2020) Chatbots – technology for the language teacher. *ELT Journal* 74(3): 338–344.
- Mackey A (2012) *Interaction, Feedback and Task Research in Second Language Learning: Methods and Design*. Cambridge: Cambridge University Press.
- McMinn S (2023) ChatGPT killed the classroom star: AI’s rise means it’s time to rethink teaching and testing. South China Morning Post Online. Available at <https://www.scmp.com/comment/opinion/article/3206436/chatgpt-killed-classroom-star-ai-rise-means-its-time-rethink-teaching-and-testing> (Accessed 28/1/23)

- Moorhouse BL (2023) Teachers' digital technology use after a period of online teaching. *ELT Journal*. Epub online. DOI: 10.1093/elt/ccac050
- Rettberg JW (2022) ChatGPT is multilingual but monocultural, and it's learning your values. Blog entry. Available at <https://jilltxt.net/right-now-chatgpt-is-multilingual-but-monocultural-but-its-learning-your-values/> (Accessed 28/1/22)
- Schmidt RW (1990) The role of consciousness in second language learning. *Applied Linguistics* 11(2): 129–158.
- Smutny P and Schreiberova P (2020) Chatbot for learning: a review of educational chatbots for the Facebook messenger. *Computers & Education* 151: 1–11.
- Winkler R and Soellner M (2018) Unleashing the potential of chatbots in education: A state-of-the-art analysis. In *Academy of Management Annual Meeting Proceedings*. Academy of Management.

Appendix – Ten Ways to Improve Your English Using ChatGPT

- 1) Using ChatGPT to practice English conversations
Suggested prompts:
Can we have a conversation about the [topic] weather? And can you suggest words and expressions I can use in this conversation?
Can we have a chat as two strangers who bump into each other in [place name]?
Can we engage in small talk, and you help correct my mistakes in English?
- 2) Using ChatGPT to create monologues and dialogues
Suggested prompts:
Can you write a dialogue between four characters like a scene from the TV show [name of TV show]
Can you write a short presentation about the problems with fake news?
Can you write a speech about [topic] that sounds like King Charles III?
- 3) Using ChatGPT to learn grammar
Suggested prompts:
Can you write a short story about [topic] using the past tense and explain when to use the past tense in stories?
Can you correct my grammar mistakes and explain them in the following text [add text]?
Can you rewrite this [insert text] in the passive voice?
- 4) Using ChatGPT to learn vocabulary
Suggested prompts:
Can you explain the meaning (or opposite) of this word [add word]?
Can you write ten sentences using this word, [add word]?
Can you give me the most commonly used expressions in the business world?
- 5) Using ChatGPT to improve your pronunciation
Suggested prompts:
Can you list the most words common with consonant clusters?
Can you list the most common words with the “R” and “V” sounds at the beginning?
Can you explain when intonation rises and falls when speaking in English?

- 6) Using ChatGPT to improve your writing
 - Suggested prompts:
 - Can you rewrite this text [add text] more politely?
 - Can you rewrite the text using the A1 vocabulary level?
 - Can you write an email asking my professor to postpone the essay deadline?
- 7) Using ChatGPT to practice TOEFL
 - Suggested prompts:
 - Can you create sample writing prompts to prepare for TOEFL?
 - Can you generate a vocabulary list for TOEFL?
 - Can you provide a sample essay related to [insert topic]?
- 8) Using ChatGPT to practice IELTS
 - Can you provide examples of complex sentence structures commonly used in IELTS writing Band 8?
 - Can you list common grammar mistakes on the IELTS writing tasks?
 - Can you give me feedback on my writing sample, including suggestions for improvement?
- 9) Use ChatGPT to prepare for a job interview
 - Can you suggest ten common questions at a [add job name] interview?
 - Can we have a back-and-forth interview for a primary teaching position?
 - Can you suggest how this reply [insert reply] can be more persuasive?
- 10) Using ChatGPT to create a study plan
 - Suggested prompts:
 - Can you suggest a reading plan to improve my academic reading skills in the next 30 days?
 - Can you create a vocabulary-building plan for me if I want to improve my nursing English?
 - Can you create a 2-month IELTS / TOEFL study plan for me? I will study for 1 hour each day.