

ChatGPT for self-regulated language learning: University English as a foreign language students' practices and perceptions

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Abstract

Focusing on the global trend of artificial intelligence (AI) in language learning, this survey-based study explored the practices and perceptions of Japanese English as a foreign language students (EFL) toward ChatGPT for second language (L2) learning. A mixed-method research design was utilized to achieve the study's aims, with data being collected from three universities in Japan. The technology acceptance model-based survey was administered in the fall of 2023 and a total of 521 EFL students fully completed it. Quantitative analysis related to the students' practices revealed that less than 25% of the respondents had used ChatGPT in their English studies, with formal language learning being more common than informal L2 learning outside of English coursework. Summarizing information written in the English language and translation were the top reported uses of ChatGPT for L2 English learning. According to the Likert scale responses, the L2 students' perceived usefulness, perceived ease of use, and behavioral intention to use ChatGPT for English learning were positive. Content analysis of the qualitative data indicated contrasting findings, namely, while the students believed the AI chatbot could enhance their L2 learning, they were also concerned that it could hinder their language learning if overly relied upon. These results indicate that although a growing number of L2 learners are using ChatGPT and perceive it to be a useful resource for language learning, they are also aware of the drawbacks it poses to the language learning process.

Keywords: generative artificial intelligence; large language model; chatbot; informal language learning; self-regulated language learning

1. Introduction

Ever since OpenAI launched its generative AI chatbot, ChatGPT-3, to the general public in November 2022, there has been intense debate regarding how it might impact education. The introduction of DeepSeek, another large language model (LLM), in early 2025 has reignited the discussion surrounding generative AI and its effect on higher education (Swift, 2025). Some fear ChatGPT and other LLMs will lead to an increase in student cheating (Shrivastava, 2022). Others assert that generative AI has the potential to replace educators (Farnell, 2023; Mitchell, 2023). While this may not happen in the foreseeable future, it is clear that generative AI tools are increasingly becoming a large part of students' daily lives. According to a recent study involving over 1,000 university faculty members and 1,600 students (Tyton Partners, 2023), close to half of students (49%) stated that they regularly use generative AI compared to only 22% of faculty. In a study that included 4,000 Japanese university students, it was found that 32% had used ChatGPT (Masutani, 2023). Although these reports suggest that generative AI use among students in higher

education is becoming more commonplace, it is not clear *how* these learners are using these tools. Moreover, in the specific context of language learning, it is unknown how prevalent generative AI use is among L2 learners.

Initially, educational literature on ChatGPT and other generative AI tools was limited to conceptual papers and descriptive articles focusing on pedagogical uses of AI chatbots (e.g., Farrokhnia et al., 2023; Rospigliosi, 2023). This was also true of L2-focused studies, as early work in the field delved into how generative AI might affect language learning and teaching (Kohnke et al., 2023a; Poole, 2022). Following this period, empirical research on the AI chatbot began to appear which examined L2 teachers' and students' perceptions of the generative AI tool (Jeon & Lee, 2023; Yan, 2023) and how it could be used for L2 assessment (Mizumoto & Eguchi, 2023; Pfau et al., 2023; Shin & Lee, 2023). Nonetheless, L2 research on ChatGPT is still needed, particularly in the context of self-regulated language learning.

Self-regulated learning (SRL) refers to “the process by which learners personally activate and sustain cognitions, affects and behaviors that are systematically oriented toward the attainment of learning goals” (Zimmerman & Schunk, 2008, p. vii). SRL occurs when language learners create, choose, and use different strategies to organize and control their learning process with minimal formal support from teachers (Zhang & Zou, 2022). According to most SRL theories, self-regulation involves three distinct phases: forethought, performance, and self-reflection (Wang & Chen, 2019; Yabukoshi, 2021). Forethought describes the pre-learning process in which learners set goals and engage in strategic planning to achieve these goals. Performance involves the act of learning, i.e., how well a learner performs. Self-reflection occurs post-learning and entails a learner’s perceptions of the earlier phases, which in turn, influences future cycles of SRL. While the SRL framework has been used to investigate various computer-assisted language learning (CALL) technologies including video streaming (Wang & Chen, 2019), virtual reality (VR) (Chen & Hsu, 2020), gaming (Chu et al., 2023), mobile applications (Yang & Song, 2022), massive open online courses or MOOCs (Wong et al., 2019), and the general use of digital tools/technologies (An et al., 2020), there is a dearth of L2-focused SRL literature on generative AI. In fact, aside from a few notable exceptions (e.g., Liu & Ma, 2024), most L2 research on generative AI has been conducted in formal language learning contexts. This aligns with a broader trend in the field of computer-assisted language learning (CALL) where formal learning contexts have received much of the research attention over informal settings (Reinders et al., 2022). Therefore, more studies are needed to understand the influence of generative AI on self-regulated language learning in both informal and formal language learning environments. Given these gaps in the research, the present study aims to understand Japanese EFL students’ practices and perceptions of ChatGPT for self-regulated L2 English learning.

2. Literature Review

2.1. SRL in CALL research

Language learners who effectively self-regulate are able to establish learning goals, create more efficient learning environments, and better adjust their learning-related plans and efforts according to their specific needs (An et al., 2020). Thus, it is critical that L2 learners have access to the tools and resources needed to promote self-regulated language learning. In this regard, digital technologies have been shown to be facilitative. For instance, Shyr and Chen (2018) compared the effects of a conventional flipped learning approach versus technology-enhanced flipped learning and found that the technology-enhanced group outperformed the control group in terms of L2 learning performance and SRL. In a study focused on VR-based L2 English learning, Chen and Hsu (2020) explored the impact of the virtual environment on language learning outcomes and

SRL. Results from their study revealed that VR had significant effects on the students' English vocabulary, listening, and reading gains, and that the virtual environment had a moderate influence on SRL. Video streaming is another digital resource that has been shown to support SRL in L2 contexts. Wang and Chen (2019) conducted a study on the use of YouTube for informal self-regulated English learning and found that the participants viewed this language learning method as more motivating and flexible compared to formal language instruction. Mobile applications can also be used to promote SRL among L2 learners. Informed by SRL theory, Yang and Song (2023) utilized a mobile application to facilitate L2 English vocabulary learning. While the mobile application promoted the first two stages of SRL (forethought and performance), some of the participants struggled with the self-reflection phase, which suggests that teachers need to take an active role in encouraging students to reflect on their language learning in digital contexts. SRL appears to have a positive influence even when learners are using the same technology for L2 learning. In a study focused on digital gaming, Chu et al. (2023) compared the differential effects of a SRL vocabulary game versus a conventional vocabulary game and found that the SRL group performed better than the control group in both vocabulary learning and self-regulation. The body of work highlighted above illustrates that technology-mediated L2 learning enhances SRL compared to other approaches. However, it is notable that AI tools have received scant attention when it comes to L2 learning and SRL.

2.2. Generative AI and L2 learning

Due to its popularity, the bulk of the current research on generative AI in L2 learning contexts has centered on ChatGPT. This literature typically falls within two areas: language learner and teacher perceptions toward ChatGPT and the potential of the AI tool for L2 assessment. Concerning teacher perceptions, views of ChatGPT appear to be mixed. Based on the results of a mixed-methods survey-based study involving university EFL teachers in China, Gao et al. (2024) concluded that the participants believed ChatGPT and other generative AI technologies were transformational tools that could promote language learning engagement. However, the teacher-participants were also concerned with issues that could arise from the use of these technologies, namely, overreliance and academic integrity. Similarly, Jeon and Lee's (2023) research centered on South Korean English language teachers' views of ChatGPT for language teaching. An analysis of the interviews with the teachers revealed four language-learning roles of the generative AI chatbot: interlocutor, teaching assistant, content provider, and evaluator. Nonetheless, the language teachers also raised ethical concerns related to the use of ChatGPT for language learning and stressed the importance of promoting the ethical use of generative AI. Konhke et al. (2023b) took a different approach in their study involving university language instructors in Hong Kong. They used a qualitative interpretive approach to explore AI preparedness among the participants. Their analysis revealed four themes: 1) familiarity with AI and its influence on attitudes, 2) the significance of familiarity and confidence when utilizing AI in language teaching, 3) support for promoting AI-related teaching competencies, and 4) adopting AI in English language teaching. These findings emphasize the knowledge and skills necessary for language teachers to effectively leverage AI in their teaching practices.

Similar to teacher perceptions, language learners' attitudes concerning ChatGPT are varied. Yan (2023) conducted a qualitative study that explored Chinese university EFL students' views of ChatGPT as an L2 writing tool. While the participants were impressed with the generative AI chatbot's capacity to quickly produce quality L2 text, they were also worried about the threats that ChatGPT posed to language learning. Specifically, they were concerned about educational equity and academic integrity when it came to the use of generative AI for L2 learning. In another study

focusing on L2 learner perceptions, Liu and Ma (2024) used the technology acceptance model (TAM) to understand the relationships between different TAM variables and the behavioral intention (BI) to use ChatGPT for informal language learning among Chinese EFL learners. The researchers found that the participants had largely favorable views of ChatGPT for informal L2 English learning and that the attitudes variable had a significant influence in determining their BI to utilize the AI chatbot for informal English learning. Using a mixed-methods design, Teng (2025) explored the views of EFL learners in Macau toward ChatGPT as a tool for L2 writing development. Results indicated that the participants had mostly positive views of ChatGPT, particularly in terms of the AI chatbot's effectiveness and reliability in providing writing feedback. On the other hand, the learners also recognized some of ChatGPT's limitations, especially when compared to feedback from teachers. In another study investigating generative AI and its perceived effects on L2 writing, Teng (2024) assessed how metacognitive awareness affected EFL students' attitudes and experiences concerning ChatGPT as a tool for writing feedback. Findings from the study showed that students with high levels of metacognitive awareness were able to more effectively leverage the AI chatbot to improve their writing, which suggests that critical thinking and self-regulation are key factors in using ChatGPT for L2 learning.

Another area that has received attention in relation to generative AI and L2 learning is language assessment. One example of such research is Shin and Lee's (2023) comparison study of ChatGPT-generated readings and test items versus a standardized English reading assessment. Pre-service and in-service English teachers from South Korea were recruited to evaluate the naturalness and overall quality of the target reading passages and test questions. The findings indicated that the naturalness of the ChatGPT-produced text and test items was similar to that of the standardized assessment. However, the multiple-choice alternatives on the human-made assessment were deemed to be more attractive compared to the ChatGPT-generated ones. The topic of L2 writing assessment has been studied by both Mizumoto and Eguchi (2023) and Pfau et al. (2023). In Mizumoto and Eguchi's study, the researchers used ChatGPT to automatically score a corpus of English essays produced by L2 learners on the TOEFL exam. Based on their analysis, they concluded that the generative AI chatbot could accurately and reliably be used to mark essays produced by L2 learners. In a similar vein, Pfau et al. explored whether ChatGPT could be used to assess L2 writing accuracy by comparing the AI chatbot's assessment of L2 English learner-produced essays to that of human raters. The results showed that the correlation between ChatGPT and human raters was quite high and that language errors identified by the generative AI chatbot had a high level of precision or accuracy.

Although research on this topic is still limited, Huang and Mizumoto have explored generative AI's impact on L2 motivation in a series of studies. In a large-scale study involving more than 300 EFL students in Japan, the researchers (2024a) studied the role of ChatGPT on motivation and writing efficacy. The results showed that the AI chatbot had significant positive effects on students' motivation, with writing efficacy correlating with three factors related to motivation. Huang and Mizumoto (2024b) studied the relationship between the L2 motivational self-system (L2MSS) and the TAM framework after the introduction of ChatGPT among Japanese EFL students. Results from their analysis indicated that there was a correlation between L2MSS and TAM, with ought-to L2 self, one of the constructs of L2MSS, positively predicting actual usage of ChatGPT for L2 learning. In an experimental study comparing the use and non-use of ChatGPT among two groups of university EFL students in Japan, Huang and Mizumoto (2024c) investigated the effect of the generative AI chatbot on motivation. According to the results, students who used ChatGPT were able to maintain higher levels of motivation compared to those who did not use the AI chatbot.

Taken together, the findings from these three studies illustrate the positive role that generative AI can have in supporting motivation in the L2 classroom.

Research Questions

The aforementioned literature sheds light on the importance of SRL and the potential role that generative AI can have in L2 learning settings. Nonetheless, there are still research gaps that need to be addressed. Specifically, this study represents a transition from formal L2 learning and teacher-directed L2 learning with generative AI to student-directed and informal use of generative AI for L2 learning. While researchers have examined ChatGPT's effectiveness for L2 assessment (Mizumoto & Eguchi, 2023; Pfau et al., 2023; Shin & Lee, 2023) and L2 teachers' and students' perceptions of the generative AI chatbot in formal L2 learning contexts (Jeon & Lee, 2023; Gao et al., 2024; Yan, 2023), empirical L2 research on ChatGPT in the context of self-regulated language learning and informal language learning is scarce. Moreover, while the general use of generative AI is increasingly common among students in higher education (Masutani, 2023; Tyton Partners, 2023), it is unknown how L2 learners are using this emerging technology for language learning purposes. Furthermore, most L2 research on generative AI involving learners/teachers has been conducted in either China or South Korea. Therefore, ChatGPT needs to be further explored to have a deeper understanding of L2 learners' experiences and views of the AI chatbot across a variety of language-learning contexts. Considering these gaps in the research, the following research questions were addressed in this study:

- 1) What are Japanese university EFL students' practices of ChatGPT for self-regulated L2 English learning?
- 2) What are Japanese university EFL students' perceptions of ChatGPT for self-regulated L2 English learning?

4. Methodology

4.1. Research Design

Levy (2015) notes that a mixed-method approach is useful when studying CALL as it allows researchers to gain a more complete picture of learners' experiences. As a result, a mixed-method research design was utilized to understand the practices and perceptions of Japanese university EFL students toward the use of ChatGPT for self-regulated L2 English learning. An anonymous survey was used to collect both quantitative and qualitative data. Quantitative data was mainly comprised of Likert-type items that focused on the learners' perceptions of ChatGPT for L2 learning. Qualitative data consisted of open-ended questions that asked the participants to share how they used ChatGPT for L2 English learning and their views of the AI chatbot for self-regulated language learning.

4.2. Participants

Voluntary sampling was utilized to recruit participants for this study. A total of 558 students from three Japanese universities, including two private universities and one public university, participated in the survey. Out of these respondents, 521 provided positive consent for their data to be collected and fully completed the survey. Consequently, the study's analysis is based solely on the data from these 521 respondents. All the participants were taking an EFL class at the time of the study through their respective departments (see Table 1). Although no data related to language proficiency was collected, the participating students were enrolled in classes designed for EFL learners ranging from A1 to B2 on the Common European Framework of Reference (CEFR) scale.

Table 1. University and departments of participants

University & departments	Number of participants surveyed (%)
University A: Foreign Studies	188 (36.1%)
University B: Language and Communication, Global Human Sciences	187 (35.9%)
University C: Commerce, Physical Therapy, Economics, Health and Sports, Childhood Sport Education, and Contemporary Social Studies	146 (28.0%)

4.3. Data Collection

Data was collected via the administered survey at the start of the fall semester in September and October 2023. The anonymous survey was administered through Qualtrics, an online survey platform, and was shared as an optional, out-of-class activity on each class's respective learning management system. The survey instrument was developed by the researchers and was based on previous CALL surveys which investigated language learners' self-regulated language learning practices and perceptions in out-of-class contexts (Balouchi & Samad, 2021; Dizon, 2021). The survey was made up of three parts. The first section was devoted to consent. This section outlined the goals of the research and emphasized that participation was anonymous and completely voluntary. If the participants provided informed consent, they were directed to the second section, which included three questions: one concerning age and two others related to their experience using ChatGPT for formal and/or informal L2 English learning. Participants who responded positively to either of these questions (i.e., they had experience using ChatGPT for L2 English learning) moved on to the third section, which delved into their practices and views of the AI chatbot for EFL learning. Specifically, 13 of the items were based on Davis's (1989) technology acceptance model (TAM) and were adapted from Balouchi and Samad, as their study also examined the use of technology for L2 learning. These TAM-based items asked the participants to rate their level of agreement according to a five-point scale ranging from strongly disagree to strongly agree toward three constructs—perceived usefulness (PU), perceived ease of use (PEOU), and behavioral intention (BI). PU relates to a user's beliefs regarding how well a particular technology improves performance whereas PEOU is connected to the belief that using a technology will involve minimal effort. BI refers to the intention of a user to utilize a technology in the future. These three variables were chosen as they are the most commonly studied constructs in the TAM framework (Lee et al., 2003). The final two survey items were open-ended questions asking the participants about the benefits and limitations of ChatGPT for English learning. The open-ended questions were as follows:

1. What do you think are the advantages of using ChatGPT to study English?
2. What do you think are the disadvantages of using ChatGPT to study English?

4.4. Data Analysis

The quantitative data, i.e., the mean (M), standard deviation (SD), and percentage agreement values related to the Likert-scale items was calculated using Excel. The qualitative data from the open-ended survey questions was analyzed using conventional content analysis (Hsieh & Shannon, 2018). A coding approach outlined by Campbell et al. (2013) was followed to enhance the inter-coder reliability of the process. Namely, the second author first coded the data using content analysis. Afterward, this coded data was given to the third author minus the second author's codes. The third author then independently coded this data. Finally, the two authors shared their respective analyses and resolved any disagreements in their coding. Inter-coder reliability was 0.59 according

to Cohen’s kappa coefficient (k), which represents a moderate level of agreement (Neuendorf, 2017).

5. Results

5.1. RQ1: What are Japanese university EFL students’ practices of ChatGPT for self-regulated L2 English learning?

Table 2 below depicts the survey results concerning the respondents’ experience with ChatGPT for L2 English learning. Out of the 521 students who completed the survey, approximately 25% ($n = 130$) had experience using the AI chatbot to study English. Fifty-four of them had used ChatGPT exclusively for formal English learning, i.e., using the AI chatbot to complete tasks related to their formal English studies. Twenty-two of the respondents had experience using ChatGPT solely for informal English learning or language learning not connected to the L2 classroom. The remaining students ($n = 54$) had used ChatGPT for both formal and informal language learning purposes.

Table 2. Students’ use of ChatGPT for L2 learning

Experience with ChatGPT	Number of students
Formal L2 learning only	54
Informal L2 learning only	22
Formal + Informal L2 learning	54
Total	130

As shown in Figure 1, the respondents with experience using ChatGPT for L2 English learning utilized the AI chatbot in a variety of ways. The most frequently reported L2 learning-related use of ChatGPT, mentioned by over one-third of these respondents, was summarizing English text. This was closely followed by translation, learning vocabulary, and corrective feedback. Other commonly reported uses included learning grammar, conversational practice, paragraph/essay writing, and language-learning material creation. Only a small number of participants reported using the AI chatbot to learn about English-speaking culture.

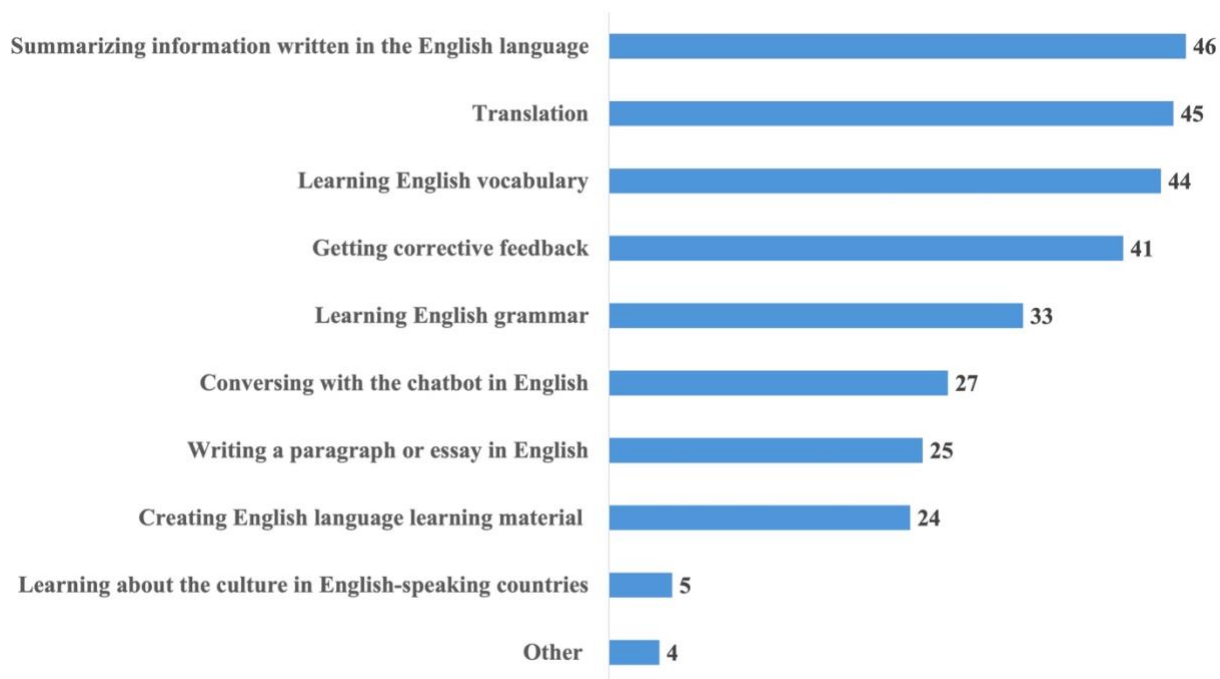


Figure 1. Uses of ChatGPT to study English

5.2. RQ2: What are Japanese university EFL students' perceptions of ChatGPT for self-regulated L2 English learning?

Table 3 shows the results of the TAM-based section of the survey. The students' attitudes toward the PU, PEOU, and BI of ChatGPT as an L2 learning resource were moderately favorable, with each construct having mean and percentage agreement values of over 3.7 and 68% respectively. In terms of PU, items 2, 3, and 5 had particularly high mean and percentage agreement values. This finding suggests that the respondents believed the AI chatbot was a useful L2 learning resource that made language learning easier and more efficient. Similarly positive results were found in relation to PEOU. In particular, items 4 and 5 received high levels of agreement, which indicates that the students perceived ChatGPT to be an easy-to-use and convenient language learning tool. The results concerning BI were also fairly positive, albeit slightly less so when compared to PU and PEOU. While the mean and percentage agreement values still indicate a favorable attitude, item 1 in the BI construct received the lowest level of agreement out of all the Likert-scale statements on the survey. This finding implies that some students had doubts regarding their intention to use ChatGPT for their L2 English learning coursework.

Table 3. TAM-based survey results

Construct / Statements	M	SD	% Agreement
PU1: ChatGPT improves my English language learning	3.72	0.97	65.3%
PU2: ChatGPT helps me learn the English language more efficiently.	3.92	0.94	77.6%
PU3: ChatGPT makes my English language learning easier.	3.94	0.91	74.6%
PU4: ChatGPT increases my English language learning productivity.	3.79	1.00	68.4%
PU5: I find that ChatGPT is useful for my English language learning.	3.88	0.79	76.1%
PU Total	3.85	0.93	72.4%
PEOU1: ChatGPT is easy to access.	3.82	0.96	70.7%
PEOU2: ChatGPT is easy to learn.	3.73	0.83	68.4%
PEOU3: ChatGPT is easy to understand.	3.73	0.83	67.6%
PEOU4: ChatGPT is easy to use.	3.90	0.88	74.6%
PEOU5: ChatGPT is convenient.	4.20	0.82	85.3%
PEOU Total	3.88	0.88	73.3%
BI1: If I had access to ChatGPT, I would use it for my English language coursework.	3.70	0.95	65.3%
BI2: If I had access to ChatGPT, I would use it outside of class to informally study the English language.	3.76	0.96	67.6%
BI3: I plan to use ChatGPT for my English learning in the future.	3.85	0.94	71.5%
BI Total	3.77	0.95	68.2%

Table 4 depicts the skewness, kurtosis, and Cronbach's alpha values related to each of the TAM variables in the study. The skewness values were between -0.91 and -0.79, whereas the kurtosis values were between 0.39 and 0.95. According to Nicklin and Plonsky (2020), skewness and kurtosis values between -3.29 and 3.29 are considered normal; thus, the data in this study falls within the thresholds of a normal distribution. Concerning Cronbach's alpha, all three of the TAM constructs had values of 0.96 or greater, which indicates a high level of internal reliability.

Table 4. Skewness, kurtosis, and Cronbach's alpha values

Construct	Skewness	Kurtosis	α
PU	-0.91	0.93	0.97
PEOU	-0.90	0.95	0.96
BI	-0.79	0.39	0.96

Table 5 below displays the five overarching positive themes that were identified from the content analysis of the open-ended written response data regarding students' views of ChatGPT. The most frequently commented-on theme was related to enhanced learning (38.5%). This theme comprised three subthemes: personalized learning (16.9%), increased learning efficiency (16.1%), and the ability to acquire new vocabulary and grammar (5.4%). Following this, ease of information retrieval was the next most common theme, mentioned by approximately 23% of the participants who had experience with ChatGPT for L2 English learning. Students who remarked on this theme believed the AI chatbot afforded them quick and easy access to important information. Thirdly, close to 17% of the respondents discussed how utilizing ChatGPT while studying helped improve their learning comprehension, i.e., the digital resource supported their comprehension of specific English phrases or words. The final two positive affordances that were identified pertained to the ability of ChatGPT to provide corrective feedback (11.5%) and writing support (7.7%).

Table 5. Positive themes related to the use of ChatGPT for L2 English learning

Theme	Subthemes	# of students (%)	Example quotations
Enhanced learning		50 (38.5%)	
	Personalized learning	22 (16.9%)	Each study can be tailored to the individual's needs Enable us to study ourselves (need nobody's help)
	Increased learning efficiency	21 (16.1%)	The ability to easily and quickly ask about English and get an accurate answer Learn more efficiently by reducing unnecessary work

Learn new vocabulary and grammar	7 (5.4%)	Learn new bombastic vocabulary and writing in a more mature way.
		It teaches me expressions I would not come up with on my own
Ease of information retrieval	30 (23.1%)	
		Can obtain information more efficiently. It is an efficient way to gather information.
Improved comprehension	22 (16.9%)	Quickly identify unfamiliar words and phrases
		Immediate help with the meaning of English words you do not understand
Corrective feedback	15 (11.5%)	The ability to easily receive correction of English compositions. Until now, I could only ask my teacher or someone who knows English grammar directly, but now I can easily study by myself by using Chat GPT as a correction tool
		Can provide feedback on corrections
Writing support	10 (7.7%)	It means that grammar and spelling accuracy will be easier to write.
		I usually use ChatGPT to improvise my writing. After finishing my writing, I would ask the AI to enhance the sentences.

Table 6 below displays the four overarching negative themes that were identified regarding the students' perceptions of ChatGPT as an L2 learning tool. The most frequently commented-on theme was related to hindered learning (47.7%). This theme comprised two subthemes: decreased independent thinking (21.5%) and language skill decline (16.1%). The second most prominent theme was connected to information inaccuracy (23.8%). Respondents who commented on this theme had doubts about the AI chatbot's ability to provide consistently accurate responses. The last identified negative theme, commented on by nearly 14% of the participants, was the risk of becoming overreliant on ChatGPT. Students who remarked on this issue had concerns that using the generative AI chatbot for English learning could lead to overdependence on the digital resource, which in turn would result in a decrease in learning ability.

Table 6. Negative themes related to the use of ChatGPT for L2 English learning

Theme	Subthemes	# of students (%)	Example quotations
Hindered learning		62 (47.7%)	

	Decreased independent thinking	28 (21.5%)	Decrease in the ability to think and come up with answers independently.
			Weakening of the ability to think for oneself.
	Language skill decline	21 (16.1%)	The ability to create sentences on one's own decreases.
			Not developing the ability to grasp sentence structures and translate independently
Information inaccuracy		31 (23.8%)	There are occasional incorrect answers.
			ChatGPT is not always very reliable, and some students might not be able to make the distinction between reliable and unreliable information.
Overreliance		18 (13.8%)	Relying too much makes one stop thinking for oneself.
			Overreliance on ChatGPT for corrections and generating sentences may hinder personal improvement in English proficiency, as it takes away the effort of doing it oneself.

6. Discussion

RQ1 explored Japanese university students' practices of ChatGPT for self-regulated L2 English learning. The results indicate that a small but significant number of Japanese EFL students are using ChatGPT to learn more about the English language. The findings also highlight the novel ways L2 English learners are using generative AI for language learning purposes. These results concerning Japanese EFL students' practices toward ChatGPT bolster the limited research on generative AI in the context of learner practices, particularly when it comes to self-regulated L2 learning. Specifically, the findings are in line with Tyton Partners' (2023) research report on American university student use of generative AI and the survey results reported in Masutani (2023) involving Japanese university students' use of ChatGPT. In those surveys, 49% of American and 32% of Japanese college students reported using generative AI tools, which is higher than the 25% of Japanese EFL students who had experience with ChatGPT in our study. However, our study reported on a specific use case (i.e., L2 English learning), while the other two surveys explored the general use of generative AI among university students. Thus, it is understandable that a lower level of generative AI usage was found in our research. It is interesting to note however that language translation was reported by 19% of the non-daily users in Tyton Partners' survey, which aligns with the high reported usage of ChatGPT-mediated translation among the respondents in our study. This suggests that students may be using generative AI as a replacement or alternative to popular machine translation tools such as Google Translate and DeepL.

Another similarity between Tyton Partners' and our research is that both studies indicated that student users of generative AI most often utilize it for summarizing text. This implies that university students, including language learners, are using ChatGPT and other generative AI tools to better and/or more quickly understand written information. In short, the results from our study indicate that Japanese EFL learners are utilizing ChatGPT in various ways to learn more about the

target language, either formally for their English coursework or informally for their independent English studies.

RQ2 addressed Japanese university EFL students' perceptions of ChatGPT for self-regulated L2 English learning. According to the quantitative results, the participants had largely favorable opinions toward the PU, PEOU, and BI to use ChatGPT for L2 English learning. The qualitative findings related to the EFL students' perceptions toward ChatGPT help explain the quantitative results found in the present study. Namely, the qualitative findings highlight some of the reasons why the respondents had favorable views of the perceived usefulness and ease of use of the generative AI chatbot for self-regulated language learning. Many of them believed it enhanced their language learning, gave them easier access to key information, and improved L2 comprehension. These results are in line with current L2 literature on the generative AI chatbot. Specifically, the current study supports the notion that L2 students have varied views on ChatGPT for English learning. While they may believe the technology is a useful language-learning resource, they also recognize its limitations as well as the risks it poses to language learning (Huang & Mizumoto, 2024c; Liu & Ma, 2024; Teng, 2025; Yan, 2023). It is also important to note that similar to the teacher-participants in Gao et al. (2024), the students in this study also expressed apprehension concerning an overreliance on ChatGPT. Taken together, this indicates that EFL instructors and learners are cognizant of the potential dangers of the emerging technology. In fact, researchers have already taken steps to mitigate AI-related issues in the classroom. For instance, Tseng and Warschauer (2023) have put forth a five-part pedagogical framework that aims to support learners' use of AI writing tools, while Huang (2023) has created guidelines for creating effective ChatGPT prompts for the EFL writing context. Resources such as these may help language instructors overcome the challenges of AI-assisted language teaching to maximize its impact on learners.

The results from this research also align with some of the principles of SRL. Namely, the students in this research autonomously chose to use a resource (i.e., generative AI) and utilized a variety of strategies (e.g., summarizing, translating, corrective feedback) with this tool to accomplish their language learning goals (Zhang & Zou, 2022). Additionally, the results from this study indicate that the participants were engaged in two of the three phrases of SRL—forethought and self-reflection. In other words, they planned and engaged in specific learning strategies using ChatGPT (forethought) and reflected upon their use of the generative AI chatbot to critically analyze its strengths and weaknesses as a resource for self-regulated language learning (self-reflection). Although it is difficult to draw any conclusions regarding performance given the scope of the current study, it is important to mention that self-reflection influences the other stages of SRL (Wang & Chen, 2019; Yabukoshi, 2021). Therefore, the results from this study are informative in terms of the potential impact that generative AI may have during the performance phase of self-regulated language learning.

7. Conclusion

While L2 research on ChatGPT has increased dramatically since its release, little is known about L2 students' language learning-related practices concerning the generative AI tool. Moreover, few studies have investigated the AI chatbot from a self-regulated learning and informal language learning perspective. For these reasons, we conducted this survey-based study to better understand how Japanese university students use ChatGPT for L2 learning and their views toward its use for language learning purposes. It was found that nearly 25% of the participants had experience using the generative AI tool for L2 English learning, with formal language learning being more common than informal L2 learning outside of English coursework. Participants used ChatGPT in various

ways, demonstrating the versatility of the AI chatbot. While the quantitative results concerning the learners' views were generally positive, qualitative analysis of the L2 students' open-ended responses revealed mixed results. These findings contribute to existing literature on generative AI and L2 learning by shedding light on L2 learners' actual practices concerning ChatGPT for self-regulated language learning, an under-explored topic in AI-assisted language learning literature. The results also provide insight into students' views toward ChatGPT for L2 learning. Although previous studies have explored this topic, this research adds to the limited literature on the Japanese EFL context (Huang & Mizumoto, 2024a, 2024b, 2024c).

Some pedagogical implications can be made based on the results of the study. Considering the various ways L2 learners can use generative AI for language learning as well as their positive views of the resource, the authors recommend ChatGPT as a tool for self-regulated language learning. In particular, it appears that generative AI may be useful in promoting L2 writing development as it can be used for translation and corrective feedback, both of which have been shown to be beneficial in supporting L2 writing (e.g., Lee, 2022, Zhai & Ma, 2023). Generative AI also affords a personalized language learning environment, one of the positive sub-themes noted in our analysis. Therefore, ChatGPT could be used by English learners of all proficiency levels as its output can be tailored to the specific ability levels and interests of each L2 student, which in turn, would allow them to learn more efficiently (Huang et al., 2023).

Despite the pedagogical affordances listed above, the qualitative analysis also demonstrates that ChatGPT has its drawbacks in the context of L2 learning. Namely, it may interfere with the L2 learning process if students overly rely on the digital resource. Therefore, language instructors should inform L2 learners of the affordances and constraints of generative AI and emphasize proper ethical use so that they can best leverage it for language learning purposes. Doing this would also promote social awareness, one of the key competencies needed in order to use generative AI for language teaching and learning (Kohnke et al., 2023a). Furthermore, this study underscores an advantage that language teachers have over generative AI—the ability to teach about culture. Less than five percent of the respondents who had experience using ChatGPT for English learning used it to learn about culture, which suggests that L2 students do not see it as useful in this regard. Thus, the authors believe that human teachers will continue to serve vital roles as resources for intercultural learning, which will allow language learners to better recognize that L2 learning encompasses not only subject matter, but also extends to diverse perspectives and ways of life (Kim, 2020).

Although this study contributes to CALL literature by examining Japanese L2 English students' practices and perceptions of a popular AI tool (i.e., ChatGPT), some limitations of the research need to be addressed. As stated earlier, much of the research on ChatGPT involving language learners has been conducted at the university level in Asia. Thus, future research involving generative AI should involve language learners across different educational and cultural contexts. In particular, it would be interesting to study the influence of generative AI in the context of less studied foreign languages and Indigenous languages as they have not received as much attention in CALL literature compared to L2 English (Sauro, 2016). Additionally, while a mixed-method design was adopted in the study, the qualitative data only consisted of written responses to open-ended questions. Because of this, more in-depth data collection methods such as interviews, stimulated recall, and/or learner diaries should be utilized to gain a more complete understanding of L2 learners' behaviors and attitudes when using generative AI for language learning. Finally, although the respondents in this study generally perceived ChatGPT to be useful for their L2 English learning, the influence of generative AI tools on L2 performance is unknown. For this

reason, it would be worthwhile to conduct experimental studies on generative AI-powered chatbots to see if they can better promote L2 skill development. Finally, unlike other generative AI studies using survey data (e.g., Huang & Mizumoto, 2024b; Liu & Ma, 2024), this study did not examine the correlational relationships between the primary constructs. As such, future research could explore how the different TAM variables interact to gain more insight into their impact on generative AI-assisted language learning across various contexts.

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