

ISSN 2187-4123

实用英語教育学会紀要

SPELT JOURNAL

第 13 号

*The Society of Practical English Language
Teaching*

2024 3

实用英語教育学会

目次

卷頭言	実用英語教育学会 会長	釣 晴彦.....	2
President's Message	The Society of Practical English Language Teaching, President	TSURI, Haruhiko	

[実践論文]

Using Artificial Intelligence to Improve Students' English Proficiency: Fostering Learner Autonomy Among Japanese University Students			3
	北海道科学大学	三浦 寛子	
	Hokkaido University of Science	MIURA, Hiroko	
	北海道科学大学	小野 祥康	
	Hokkaido University of Science	ONO, Yoshiyasu	

[投稿規程].....	16
---------------	----

SPELT JOURNAL 第13号の発刊に寄せて

実用英語教育学会の第13号研究紀要が発行された。今回は本紀要に1本の研究論文が寄稿された。題は「Using Artificial Intelligence to Improve Students' English Proficiency: Fostering Learner Autonomy Among Japanese University Students」である。この論文は、生成系 AI の今までの変遷をたどり、日本の大学生に会話型 AI アプリケーションを活用しての学習の成果を調査し検証した内容である。Small GPTalk からのフィードバックは大変興味深いデータである。学習者はそのツールを使用して学習の面白さを理解すると持続的な学習の必要性が高まり、学習者としての自律性が高まるのではないかと期待される。今回は、被験者となった大学生の人数が制約上少なかつたが、検証した結果、このツールがきっかけとなって自律的な学習者になるという期待は裏付けられなかつた。恐らく今後生成系 AI を活用した研究が未来を見据えた教育・研究として、沢山発表されていくだろう。今回のこの研究論文は、先行研究となってさらに研究を継続していくことに繋がることを願っている。

実用英語教育学会の第12回研究大会で青山学院大学名誉教授の小張敬之氏が「Web3.0/Society5.0/メタバース時代の英語教育」の題で、英語をコミュニケーションの手段として、AI/ICT を利用した実践教育の講演を思い出した。生成系 AI や ICT の技術を用いて英語力を鍛え、ものの見方や考え方を幅広くし、自らの世界観を持たせることがこれからの社会になると、今後の生成系 AI の活用が予言されていた。講話の内容が非常に印象深く、今でも記憶に残っている。

生成系 AI の急速な進歩は2022年11月下旬に公表され世界中が注目した ChatGPT が代表である。その利用方法は、企業や大学をはじめとする多くの教育現場で話題を呼び、様々な影響を及ぼしている。ChatGPT は、研究活動に多くの利点をもたらす一方で、一部のタスクには適していないという点も指摘されている。しかし生成系 AI の進歩は今ものすごい勢いで進んでいる。また同時に高校や大学で ChatGPT の使用にあたっての注意書が出されていることも事実である。これだけインターネットが普及した社会では、もはやインターネットを禁止すると規制してもナンセンスである。変化のスピードが特に速いデジタル技術の使い手を増やし、新しいスキルを習得する「リスキリング」がビジネスの中でも大規模に行われている。まさに教育界が一番遅れているかも知れない。生成系 AI で個別化教育ができ自己肯定感を上げることができるツールとしての活用が可能な時代になるのがすぐ近くにあると思う。

実用英語教育学会は、これからもさらなる研究と実践の蓄積をしていく所存である。小学校、中学校、高校、大学と連携を常に密にして一層発展させていきたい。研究論文や実践報告を是非積極的に応募していただければありがたい。ご意見を含めて皆様のご支援ご協力を今後も宜しく願いたい。

実用英語教育学会会長 釣 晴彦
北海道文教大学教授

Using Artificial Intelligence to Improve Students' English Proficiency: Fostering Learner Autonomy Among Japanese University Students

Hiroko MIURA, Yoshiyasu ONO
(Hokkaido University of Science)

Abstract

Over the past decade, the concerns regarding artificial intelligence (AI) have grown rapidly. Although an increasing number of studies have been conducted on language classrooms, no clear guidelines exist regarding their use. This study examined the effects of conversational AI applications on Japanese university students. After a discussion of the history of AI and its use in education, the necessity of AI for non-native English speakers is demonstrated in two studies. Previous research has indicated that conversational agents encourage students to interact with artificial intelligence and promote learner autonomy. Following the SmallGPTalk presentation, the methodology used to conduct surveys among university students in this study was elucidated. Although the quantitative survey found no significant differences, many students stated that the application helped them improve their English skills, particularly regarding proficiency and grammar, in a safe environment that allowed them to make mistakes. In contrast, lengthy messages from artificial intelligence instructors discouraged them from using the application outside the classroom, and the students expected sympathy from artificial intelligence. Contrary to the expectations, the students' enjoyment in using the agent did not enhance their autonomy. Future research should explore methods to help students recognize their improvements through the use of conversational agents.

1. Introduction

Artificial intelligence (AI), which automatically proved a mathematical theorem, was first introduced in the United States in 1956 (Arai, 2018). Extensive research has since been conducted on this topic. The first AI boom occurred between the late 1950s and the 1960s, and a second boom occurred during the 1980s. During this time, people tried to create an expert

system specialized for a specific field; for example, a system that had obtained ample information on rules and laws and was expected to play the role of a lawyer. However, the difficulties this entails in quantifying ambiguous things are challenging. The Internet has expanded rapidly since search engines first appeared in the mid-1990s, and massive amounts of data have accumulated as web resources, which provides examples from which computers learn patterns to make independent decisions. This is called machine learning, which led to the third AI boom in mid-2010. Deep learning, a type of machine learning, has further expanded this boom.

Currently, AI is one of the most popular research topics. Many people worldwide have already used voice assistants, such as Apple's Siri, Amazon's Alexa, and Google Assistant. Automated cars are also being rapidly developed, and the Japan National Police Agency (n.d.) has allowed such vehicles to be tested in public road demonstration experiments, as these cars are expected to reduce accidents and alleviate traffic congestion. AI can learn from enormous amounts of data, whereas traditional robots can only work based on programs set up in advance. Consequently, drastic changes in AI, including language-related changes, have been observed in many fields.

Chen et al. (2020) analyzed AI-powered education (AIEd) literature from 1999 to 2019 and found that the number of AIEd studies rapidly increased between 2012 and 2019. In the literature, the frequently used keywords were "education," "machine learning," "robotics," "artificial intelligence," and "deep learning." These AI-related words have been used in and influenced educational institutions throughout the previous decade of the 21st century.

Huang et al. (2023) investigated 4,519 empirical papers focusing on AI technologies to support learning and teaching, and found that AI is frequently used to assist students in writing, reading, vocabulary, grammar, speaking, and listening. According to their research, the most popular topics are automated writing evaluation, intelligent tutoring systems for reading and writing, automated error detection, computer-mediated communication, natural language learning, and vocabulary learning (Huang et al., 2023).

2. Literature Review

Universities and educational institutions are not yet ready to issue guidelines on the use of AI, and view generative AI and ChatGPT as threats to students' development of critical thinking, writing abilities (Hong, 2023), creativity, and problem-solving skills (Kasneci et al., 2023). However, some individuals have welcomed generative AI. This chapter discusses two papers on the use of AI by non-native English speakers.

2.1 AI Use for Non-Native English Speakers in Science

Amano et al. (2023) highlighted the severity of language barriers that non-native English speakers face in science and urged the appropriate use of AI tools to reduce them. They conducted online research on 908 environmental science researchers from eight countries who

had published at least one first-authored peer-reviewed paper in English, and found that 95 percent of these non-native English speakers needed help in conducting and communicating science in English.

Amano et al. (2023) state that certain points should not be ignored. First, non-native English speakers need more time to read and write English-language papers than to perform the same tasks in their first language. Second, they require more effort than native speakers to proofread their papers in English. Third, non-native English speakers are more likely to have their papers rejected by journals because of their English writing skills. The frequency of language-related paper rejection among non-native English speakers was 2.5–2.6 times higher than that among native English speakers. Fourth, 30 percent of early-career (those who have published five or fewer English papers) non-native English speakers of high-income nationalities, such as Japanese and Spanish, often or invariably refrained from participating in English language conferences due to language barriers. In addition, about half of the early-career non-native English speakers of high-income nationalities often or always avoided oral presentations for the abovementioned reasons. Non-native English speakers must spend much more time preparing the presentations in English than do their native English counterparts. However, this tendency does not hold for first-language presentations.

After the authors identified these disadvantages, they pointed out that the scientific productivity of non-native English speakers was undoubtedly much lower than that of native English speakers and noted that these disadvantages led to a tremendous inequality between native and non-native English speakers in the development of their scientific careers by imposing an inevitable burden on non-native English scientists.

These disadvantages may be frustrating because of the additional time, cost, effort, and lost opportunities due to language barriers. Therefore, they insist that AI is important for non-native English scientists as well as beneficial to the careers of Japanese university students by helping them transform themselves into global players and gain treatment equal to that of native English speakers in the same field in the future if they are familiar with AI.

2.2 Use of Machine Translation for Japanese Graduate Students

Fukunaga and Yip (2023) studied the use of machine translation (MT) by 39 first-year Japanese graduate students in Science, Technology, Engineering, and Mathematics (STEM). All students had experience in using MT tools, such as DeepL, Google Translate, and Weblio Translate. Many reported that they copied and pasted sentences from MT, as it reduced errors and created sentences that the students found difficult to express owing to their limited proficiency. However, while they noticed that MT was helpful, they needed clarification regarding the accuracy of the MT output. Fukunaga and Yip (2023) revealed that students' lack of strategies for effective MT use negatively impacted the improvements in their skills generated by the technology's translation quality and knowledge construction.

The authors concluded that Japanese universities must have clear guidelines for ethical MT use, and EFL/ESP instructors must consider how to integrate MT into the school policy

curriculum and student goals (Fukunaga & Yip, 2023).

Because students have already used AI with MT, they possess the necessary competence, so it is essential that they understand and be aware of the issues that they may encounter. This is particularly important when AI is used in educational institutions because it is quite likely that they will use the technology in their studies without knowing the risks.

2.3 Natural Language Processing

Natural language processing (NLP) is the ability of a computer program to manipulate spoken and written languages, and it is applied by Siri, Alexa, and Google Assistant, as mentioned above. NLP can immediately transcribe discussions in meetings or conversations between the staff at call centers and customers. Incorporating ChatGPT into a language-learning environment provides many opportunities to explore, enhance, and personalize student learning experiences. One study showed that students can practice and improve their conversation skills by interacting with AI (Ayedoun et al., 2019), allowing students to learn the target language by communicating with the AI at their own pace.

The effectiveness of conversational agents, such as chatbots in promoting students' learning success has been analyzed in several studies. Tran et al. (2019) used a Facebook auto-messenger in a conversational activity to teach prepositions. The participants were 100 students who were learning prepositions with a supplied paper and their teacher's lecture (control group), while another 100 were learning prepositions with the help of a Facebook chatbot (experimental group). Students in the experimental group enjoyed a new way of learning and interacted with the chatbot even outside of class meetings. The authors reported that the target grammar items were best understood when students were afforded autonomy (Tran et al., 2019).

Another study was conducted with 176 undergraduates in Spain and Poland who independently interacted with three types of conversational agents, including text-based and voice-enabled interactions, for three weeks (Belda-Medina & Calvo-Ferrer, 2022). Analysis of the quantitative and qualitative data showed a gap between student preparation and recent advances in the application of AI in language learning. They found that privacy must be considered carefully, particularly when young language learners use conversational agents. In addition, students preferred text-based interactions as voice-enabled interaction sounded robotic and unnatural (Belda-Medina & Calvo-Ferrer, 2022).

There is another study conducted on Japanese university students who spent two months using Amazon Alexa, an intelligent personal assistant (IPA), at home for autonomous second-language learning (Dizon & Tang, 2020). Although most of the students found Alexa beneficial for learning the language, they gave up communicating with the IPA when they struggled with the interactions.

These studies indicate that NLP might contribute to the development of student autonomy if the interaction goes well. However, precautions for its use must be taken in advance, and familiarity with conversational agents and human-like communication are essential.

2.4 Students' Autonomy

Because the target learners in our study were university students, students' autonomy was considered as an important factor. Each student has a different schedule; therefore, they must decide what to do and when to do it. Learner autonomy is defined as "the ability to take charge of one's own learning (Little, 2007, p.15)." Little says, "adult language learning programmes should be capable of meeting the specific communicative needs of individual learners (2007, p.16)." Adult education needs to "develop the individual's freedom by developing those abilities which will enable him to act more responsibly in running the affairs of the society in which he lives" (Holec, 1981, p.1).

Miura (2020) stated that students assigned more challenging tasks demonstrated richer speech and also reported higher levels of satisfaction. This suggests that students are likely to seize opportunities to enhance their language skills when facing challenging and beneficial tasks that students believe to be valuable. Consequently, when students have meaningful materials, their engagement expands beyond the classroom, fostering greater autonomy.

During the COVID-19 pandemic, student autonomy seemed to be in greater demand. Our school provided only online lessons for a while, and students took some of the lessons online and others on-demand. Even after the school decided to offer lessons on campus, there were days when students took only online or on-demand lessons at home. This means that they were required to plan to study independently.

3. Aim of this Research and SmallGPTalk

Since we have investigated the importance of AI for non-native speakers of English and the results related to previous studies of NLP, this study examined the possibilities of fostering student's autonomy and enriching their expression using a conversational agent called SmallGPTalk as a means for students to practice speaking in circumstances where face-to-face communication is restricted because of the COVID-19 pandemic.

SmallGPTalk is a free application produced by Classmethod, Inc. (2023) that facilitates casual conversations with AI English tutors "sent" from ChatGPT on LINE. This provides a situation similar to that of a one-on-one English conversation. By using LINE, the exchange of messages in a certain context creates a more authentic and human-like conversation experience than typing ChatGPT directly.

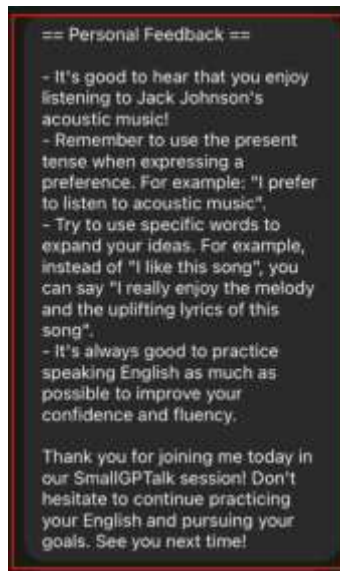
Users are ready to use the application after accepting a friend request from SmallGPTalk. They can start by choosing one of the three topics –favorite hobbies, a memorable vacation, or a favorite type of food– suggested by SmallGPTalk and begin chatting by texting a message. It is possible to change the topic during the interaction and start over. Replies from the AI instructors appear instantly. When the user wants to stop chatting, they simply type "Owarimasu" (I will finish) in Japanese. They then receive personal feedback (see Figure 1), which is not always possible for human instructors.

When students engage in communicative activities in pairs or groups, there is often a

disparity in their English proficiency levels. Fluent English speakers may feel disappointed when paired with those with limited proficiency, whereas the latter may feel intimidated by the former. SmallGPTalk can adapt to each student's level and provide simpler sentences if necessary. This can be a good motivation for its use with students.

Figure 1

An Example of Feedback from SmallGPTalk



Note. This figure demonstrates an example of feedback from SmallGPTalk. Adapted from Classmethod, Inc., 2023 (<https://dev.classmethod.jp/articles/smalltalk-with-chatgpt-small-gptalk/>).

4. Context, Method, and Materials

4.1 A Preliminary Survey

4.1.1 Overall Information about the Preliminary Survey

A preliminary survey was conducted to determine whether SmallGPTalk was sufficiently user-friendly for Japanese university students, and whether it could contribute to their conversational skills. According to the Mobile Society Research Institute (2023), established by NTT DOCOMO Inc., a major telecom carrier in Japan, LINE (a free communications application) has the highest usage rate among all generations in Japan. More specifically, 94.4% of Japanese teenagers use it, followed by 92.8% of young adults in their 20s. All students in the target classes were LINE users and were therefore accustomed to sending or accepting friend requests on LINE.

Students were sorted according to their placement test scores and classified into three levels: primary, intermediate, and advanced. Classes were more likely to be decided by the number of students per class than by the students' actual English level. Approximately 20% of the students were in the advanced class, 20% in the primary class, and the rest were in the intermediate class. Only intermediate (80%) and advanced (20%) classes were available for students in the Faculty

of Health Sciences, which means that there were some students whose English proficiency was not sufficiently high in the intermediate class.

As the students were familiar with LINE, SmallGPTalk appeared to be an attractive tool for enhancing their communication skills. The application was introduced in two intermediate classes consisting of mixed student groups from the Radiological and Rehabilitation Departments. One class consisted of 27 freshmen, whereas the other had 29 sophomores. The aim of the class was to develop students' proficiency in the four language skills, and SmallGPTalk seemed to play an important role in fostering communication.

The instructor first taught the participants how to use it and for what purposes, and showed examples that might be developed by chatting with an AI instructor. Possible risks related to ChatGPT were also stated, and the students were requested not to post their personal information. In addition, they were instructed not to start using SmallGPTalk before class, as it could only be used once a day owing to the system configuration. Each student and instructor conducted at least three exchanges per session.

4.1.2 Results and Discussion

The findings revealed the following. First, SmallGPTalk was generally accepted positively by students. However, according to the instructor's observations, the learners took a considerably longer time to understand the replies they received and express themselves in response to the messages in English. Some students spent considerable time looking up expressions on the Internet during their interactions.

This preliminary survey suggested that SmallGPTalk was more likely to benefit advanced-level students as they are likely to be able to use the target language easily enough to keep the conversation going than intermediate students.

4.2 A Second Survey

4.2.1 Overall Information about the Primary Survey

Based on the preliminary survey, the following survey was planned for advanced-class students: The same type of prior explanation as that for the students who contributed to the preliminary survey was provided to 25 sophomores in an advanced class. The instructor explained that all data would be collected for research and shared in a form that would not allow individuals to be identified. Each student had the right to refrain from contributing by refusing to answer nine questions in the final class. Data from two students who were absent on either the pre- or post-survey days were missing, so the data of 23 students were analyzed in this survey.

For seven consecutive weeks, the students used SmallGPTalk for 15–20 minutes in each class. Before introducing SmallGPTalk to the students, the teacher asked them four questions orally in English, and they wrote their answers on a sheet of paper. After engaging in seven chat sessions using SmallGPTalk, the same process was repeated in the second survey to examine whether more enriched content was present. The data were entered into a spreadsheet for comparison. The four questions were as follows:

1. What do you want to talk about today?
2. Why did you choose this topic?
3. Why don't we talk about your hobbies?
4. By the way, what do you like to do in your free time?

In addition, data were collected from 24 students' responses to nine questions on Google Forms on the last day of SmallGPTalk use in class. However, the data from only 23 students were used in this study. This survey was conducted in Japanese. Participants answered the following questions:

1. Did you use SmallGPTalk outside of classes?
 - I used it only in class.
 - I used it once or twice.
 - I used it around 3–5 times.
 - I used it around 6–10 times.
 - I used it over 10 times.
2. Did you enjoy talking with SmallGPTalk?
 - I enjoyed it a lot.
 - I enjoyed it.
 - I did not really enjoy it.
 - I did not enjoy it at all.
3. What is the advantage of chatting with SmallGPTalk rather than with an actual human?
4. What is the disadvantage of chatting with SmallGPTalk than with a real human?
5. Please share one experience you had while using SmallGPTalk.
6. Please share whether you have learned to communicate in English or have improved your communication skills by chatting with SmallGPTalk.
7. Would you like to continue using SmallGPTalk or another application to improve your English skills after completing this course?
 - Yes, absolutely.
 - Yes, if I feel like it.
 - Probably not.
 - Never.
8. Please tell us why you answered Yes/No to question 7.
9. Do you have any feedback on SmallGPTalk?

The majority of the questions required description-style answers, except for questions 1, 2, and 7, which were multiple-choice questions.

Lastly, the students also kept records of their topic and their thoughts on the talk after each session, although these data are not dealt with in this paper, but were collected for further study.

4.2.2 Results of the Quantitative Data and Discussion

The students' answers to the four questions in the pre- and post-survey were compared to see if there were richer sentences, complicated structural sentences, or other traits. The expectations for using SmallGPTalk include increasing students' vocabulary, providing good examples for explaining things, and expressing opinions.

No remarkable differences were found in the quantitative data between the pre- and post-surveys. There are several possible explanations for this. First, students' answers tended to be short. Through several experiences of chatting with AI instructors, they became accustomed to receiving long messages, taking a while to read them, and quickly sending short replies. Next, the students might have felt bothered, as they were required to answer the questions after the chat using SmallGPTalk. Chatting through SmallGPTalk seven times might have been insufficient to improve their conversational skills.

Another possible reason is that the expected answers to Questions 1, 3, and 4 did not need to be long in the first place. For example, the expected answer to the question, "What do you want to talk about today?" is "I want to/I'd like to talk about [noun(s)]." As an examination of the quantitative data, the answers to Question 2, "Why did you choose this topic?" were the only possible data to compare the pre- and post-survey, and they were not sufficient to find differences.

However, only slight changes were observed. Some students used Japanese words such as 魅力(attractiveness) and soba (Japanese buckwheat noodles) in the pre-survey, but no one used Japanese words in the post-survey, except for proper nouns and the word manga, which is widely used as an English word. When they used Japanese or Romanized Japanese in English sentences without any explanation during the interactions, the AI instructor explained them in English. This type of interaction can influence student attitudes.

4.2.3 Result of the Questionnaire Data and Discussion

The most popular answer response to question 1 was "I used it once" (58.3%), and 37.5% of the participants responded, "I used it once or twice." The remainder used it 3–5 times, which shows that SmallGPTalk was mainly used in class, but not frequently outside the classroom. This means that the activity did not contribute to the development of students' autonomy.

Answers to Question 2 revealed that many of the students liked using SmallGPTalk. Approximately 29.2% of the participants answered, "I enjoyed it a lot," and 62.5% said, "I enjoyed it," although 8.3% did not enjoy talking to the AI instructor. The responses to Questions 1 and 2 indicated that the students did not use the application to improve their English outside of class, even though they enjoyed using it in class.

Regarding Questions 3 and 5, the most common answer to the good points of using SmallGPTalk was that the AI instructors could converse on any topic that the students had started. Most of the students shared episodes on Google Forms that indicated the deep impression this experience made on them. For example, the AI guessed the title of a movie that one student spoke about, whereas another AI pretended to be interested in cooking. Students were also pleased that they did not have to worry about making the instructors wait when they took time to reply or when they struggled with long replies that included unknown vocabulary. Quick responses and the natural flow of the conversation without correcting grammatical mistakes were their favorite points. Because many students hesitated to speak English in public, the application encouraged them to use English.

In contrast, according to the results of Question 4, nine students (37.5%) felt that the replies they received were extremely lengthy and that they were unable to read and understand the content. Five students (20.8%) were disappointed that they could not experience human-like reactions from the AI instructors. Students hoped to have the same instructors to build good relationships with them. It is evident from the students' comments that they expected AI instructors to act like partners or friends who were eager to understand them.

Regarding Question 6, 22 out of 24 students (91.7%) realized that SmallGPTalk helped them improve their English proficiency and grammar skills. Many participants discussed aspects such as vocabulary and grammar. Replies often included words that the students had almost forgotten or that were unknown. The replies also introduced phrases and expressions with context. In addition, they recognized that they did not have to worry about making mistakes. One student used strategies to consider different ways of expressing unknown words. The remaining two who did not feel any improvement seemed to have a positive view of SmallGPTalk but said that they needed more time to realize their progress.

Overall, 8 students (33.3%) responded that they would like to continue using SmallGPTalk, 12 students (50%) shared that they might use it, and 4 students (16.7%) answered that they probably would not use it. Students who used SmallGPTalk outside the class wanted to continue using it (see Table 1), but only moderately so. Table 2 shows the tendency of students who enjoyed using SmallGPTalk in class to use it outside class as well, but only moderately. These results indicate that the enjoyment in using ChatGPT does not necessarily lead to its continued use. This could be because their major was not English, and their desire to improve their English was not their first priority.

However, this case study is limited in terms of the scope of the target. Analyses were conducted to determine whether there was a trend; however, no statistically significant differences were observed.

Table 1

Relationship between the frequent use of SmallGPTalk and its future use

<i>n</i> =24	Absolutely. I will continue using it.	I will use it if I feel like it.	Probably not	Never
Only in class	3	7	4	0
Once or twice	5	4	0	0
Around 3–5 times	0	1	0	0
Over 5 times	0	0	0	0
Total	8	12	4	0

Table 2

Relationship between the frequent use of SmallGPTalk and satisfaction levels

<i>n</i> =24	I enjoyed it a lot.	I enjoyed it.	I did not really enjoy it.	I did not enjoy it at all.
Only in class	3	9	2	0
Once or twice	4	5	0	0
Around 3–5 times	0	1	0	0
Over 5 times	0	0	0	0
Total	7	15	2	0

4. Conclusion

For non-native English speakers, AI offers many opportunities to compensate for their weaknesses in using the language. The AI era has already begun, and it is important for students to learn how to make good use of it. This study was conducted to determine whether SmallGPTalk, a conversational agent, stimulates students' autonomy and enriches their English language expressions.

Although the students enjoyed chatting with the AI instructors and felt that their English had improved through the activities, many did not use it outside the classroom. This implies that SmallGPTalk did not strongly motivate users to use it continuously. Based on the students' answers to the questionnaires, we conclude that the use of SmallGPTalk did not develop the students' autonomy.

Chatting for 15 minutes in seven classes might not have been sufficient to recognize their clear improvement, but nearly 92% of the students felt that AI helped them improve their vocabulary, including collocations, through interaction in an atmosphere where they felt safe to make mistakes and take time to reply. However, a sense of reward—that is, an awareness of their growth—can be a good source of motivation.

Future studies should consider maintaining records of what the students have learned or

perceived to be necessary to facilitate their awareness. This has the potential to motivate them to use the application or other meaningful resources as they become aware of the value of what they have learned or felt. Therefore, it is important to find an effective way to develop learner autonomy. In addition, the quantitative survey must be modified. The topics chosen by students and the frequency of discussions on the same topic may influence the content of their expressions. Therefore, for the quantitative survey, it would be advisable to let students choose a topic from the following three: favorite hobbies, a memorable vacation, and favorite type of food, and write a decent number of sentences about the chosen topic. It would then be easier to see if they have learned vocabulary through coherent communication with AI tutors.

References

- Amano, T., Ramírez-Castañeda, V., Berdejo-Espinola, V., Borokini, I., Chowdhury, S., Golivets, M., González-Trujillo, J. D., Montañño-Centellas, F., Paudel, K., White, R. L., & Veríssimo, D. (2023). The manifold costs of being a non-native English speaker in science. *PLoS Biology*, *21*(7), e3002184.
<https://doi.org/10.1371/journal.pbio.3002184>
- Ayedoun, E., Hayashi, Y., & Seta, K. (2019). Adding communicative and affective strategies to an embodied conversational agent to enhance second language learners' willingness to communicate. *International Journal of Artificial Intelligence in Education*, *29*, 29–57.
<https://doi.org/10.1007/s40593-018-0171-6>
- Arai, N. (2018). *Artificial intelligence vs. children who cannot read textbooks*. Toyo Keizai Inc.
- Belda-Medina, J., & Calvo-Ferrer, J. R. (2022). Using chatbots as AI conversational partners in language learning. *Applied Sciences*, *12*(17), 8427.
<https://doi.org/10.3390/app12178427>
- Chen, X., Xie, H., & Hwang, G. J. (2020). A multi-perspective study on artificial intelligence in education: Grants, conferences, journals, software tools, institutions, and researchers. *Computers and Education: Artificial Intelligence*, *1*, 10005.
<https://doi.org/10.1016/j.caeai.2020.100005>
- Classmethod, Inc. (2023, March 5). *LINE to ChatGPT de tsukuru eikaiwa apli: Eigo gakushu wa AI to okonau jidai ga tsuini torai? ChatGPT to LINE Bot de online eikaiwa apli "SmallGPTalk" wo tsukutte mita* 【Creating an English conversation app with LINE and ChatGPT: Is the era of AI powered English learning upon us? The online English conversation app "SmallGPTalk"】 .
<https://dev.classmethod.jp/articles/smalltalk-with-chatgpt-small-gptalk/>
- Dizon, G., & Tang, D. (2020). Intelligent personal assistants for autonomous second language learning: An investigation of Alexa.
The JALT CALL Journal, *16*(2), 107–120. <https://doi.org/10.29140/jaltcall.v16n2.273>
- Fukunaga, S. & Yip, C. C. (2023). Use of machine translation among EFL Japanese graduate

students in STEM disciplines: Perceptions and beliefs. In Y. Ishikawa (Ed.), *Developments in engineering English research: Theory, practice, and application* (pp. 147-169). Kinseido

Holec, H. (1981). *Autonomy and foreign language learning*. Oxford: Pergamon.

Hong, W. C. H. (2023). The impact of ChatGPT on foreign language teaching and learning: Opportunities in education and research. *Journal of Educational Technology and Innovation*, 5(1), 37-45.

Huang, X., Zou, D., Cheng, G., Chen, X., & Xie, H. (2023). Trends, research issues and applications of artificial intelligence in language education. *Educational Technology & Society*, 26(1), 112-131.

<https://www.jstor.org/stable/48707971>

Kasneci, E., Sessler, K., Küchemann, S., Bannert, M., Dementieva, D., Fischer, F., Gasser, U., Groh, G., Stephan Günemann, S., Hüllermeier, E., Krusche, S., Kutyniok, G., Michaeli, T., Nerdel, C., Pfeffer, J., Poquet, O., Sailer, M., Schmidt, A., Seidel, T., Stadler, M., ... Kasneci, G. (2023). ChatGPT for good? On opportunities and challenges of large language models for education, *Learning, and Individual Differences*, 103, 102274.

<https://doi.org/10.1016/j.lindif.2023.102274>

Little, D. (2007). Language learner autonomy: Some fundamental considerations revisited. *Innovation in Language Learning and Teaching*, 1, 14–29.

<https://doi.org/10.2167/illt040.0>

Miura, H. (2020). A study of oral communication skills, task difficulties and students' satisfaction. *PUPIL: International Journal of Teaching, Education and Learning*, 4(2), 20–32.

<https://doi.org/10.20319/pijtel.2020.42.2032>

Mobile Society Research Institute. (2023, April 17). *LINE riyoritsu 83.7%: 10-60 dai made 8-9 wari ga riyo* 【LINE usage rate 83.7%: 80–90% of people in their 10s to 60s use it】 .

<https://www.moba-ken.jp/project/service/20230417.html>

National Police Agency. (n.d.). *Jido unten* 【Autonomous car】 .

<https://www.npa.go.jp/bureau/traffic/selfdriving/index.html>

Tran, N. T., Phuc, T. H., & Tat, T. N., (2019). Applying AI chatbot for teaching a foreign language: An empirical research. *International Journal of Scientific & Technology Research*, 8(11), 897–902.

SPELT JOURNAL 投稿規定

1. 執筆者は投稿の申し込み時点で全員が会員であることとする。
2. 投稿論文は、未発表のものに限る。ただし、口頭発表したものでも、その旨を明記してあれば、審査の対象とする。
3. 投稿分野は、学術的な実験・調査および理論的考察等をまとめた「研究論文」と、教育実践にもとづく知見を考察する「実践論文」との2部に分ける。
4. 原稿は、原則としてMSワードを用い、A4縦長の用紙に以下の書式で作成すること。規定に大きく反しているものは受理しない(ニューズレターへの投稿を依頼する場合がある)。
 - (ア) 上下左右に3cmずつ余白を設ける。
 - (イ) 横書きで、文字の大きさは、和文・英文とも12ポイントで作成する。
 - (ウ) 和文の場合37字40行でフォントは明朝体、英文の場合74字40行で、フォントはCenturyを使用する。日本語に英数字が混じる場合、全て半角を使用する。
 - (エ) 最初の頁に、3行空けて論文タイトル(16ポイント、ボールドは不要)、1行空けて氏名、改行して括弧書きで所属(共著の場合は改行せずにまとめて可)、さらに1行空けてAbstractと書き、次の行から200語程度の英文Abstractを一つの段落にまとめて置く。論文タイトル、氏名と所属、Abstractの語句はセンタリングを施すこと。Abstractの後、1行空けて本文に入る。
 - (オ) 英文タイトルは、語頭を大文字、他は小文字で表記する。英文著者名は Hanako HOKKAI の要領で表記すること。
 - (カ) 各章・節のタイトルには番号をふる。章タイトルはセンタリングし、前後1行ずつ空ける。節タイトルは左寄せし、前後で行を空けない。番号は、ローマ数字ではなく、アラビア数字を用いる。章タイトルの前に付す番号の直後にはピリオドをふる(例: 3. 調査の方法)。また、章と節を示す番号の間には、ハイフンの代わりにピリオドを用いる。例: 2.1.3
 - (キ) ページ番号は不要。ただし、査読用に印刷したものには、用紙右上に鉛筆で記入する。
 - (ク) Abstract、本文、注、文献リスト、図、表等の資料すべてを含め、研究論文、実践論文とも10枚以上20枚以内とする。
 - (ケ) 図、表には一連の番号をつける。脚注はつけず、全ての注は本文と文献リストの間にまとめておく。また、表の前後は一行ずつ空ける。
 - (コ) 英文原稿、英文Abstractは、必ずネイティブチェックを受けたものを提出する。
 - (サ) 文献リストは、本文中に言及あるもののみを「引用文献」(日本語論文)あるいはReferences(英語論文)と左寄せして掲げた後に続けて書く。配列は、英語文献を先に著者名のアルファベット順に並べ、次に日本語文献を「あいうえお順」で続ける。論文中の引用の方法や引用文献の書式、図や表の作成方法については、American Psychological Association発行の*APA Publication Manual(7th Ed.)*を参考にすること。参考までに、文献リストの書式例を以下に掲げる。

- ①日本語文献の発行年のあとのピリオドは不要。
- ②紀要等の号数を表示する際、「第～号」のようにする必要はなく、数字だけでよい。
- ③インターネット上の資料を挙げる場合には、[URL]のみでよく、閲覧日又は取得日を記載する必要はない。

Baker, S. C. & MacIntyre, P. D. (2000). The role of gender and immersion in communication and second language orientations. *Language Learning*, 50, 311-341.

伊田勝憲 (2002) 「学習動機づけの統合的理解に向けて」. 『名古屋大学大学院教育発達科学研究科紀要』, 49, 65-76.

池田 央 (1989) 「階層クラスター分析」. 池田央(編)『統計ガイドブック』(pp.199-200) 東京：新曜社.

文部科学省(2017) 「全国学力・学習状況調査における中学校の英語の実施に関する最終報告 基礎資料 (平成 28 年度英語力調査結果 (中学 3 年生) の速報)」
文部科学省ホームページ (http://www.mext.go.jp/component/a_menu/education/micro_detail/_icsFiles/fieldfile/2017/03/30/1383783_1.pdf)

(シ) 本文中の引用先の明示については、日本語の場合は (池田、2018) のように表記し、英文の場合は(Chamot, 2018)とする。

5. 論文本体の構成は以下を基本とする。これ以外の構成の論文投稿を妨げるものではないが、その構成が妥当か否かの判断は査読者の判断に委ねられる。

(ア) 研究論文： 調査・実験等によるデータ収集を伴う論文

- ① 「はじめに」または「序論」として、研究の目的及び意義を述べる。
- ② 「研究の背景」や「先行研究のまとめ」等として、当該分野におけるこれまでの関連する研究を概観し、研究課題の新規性・独創性を述べる。(①と②は1つの章にまとめてもよい。)
- ③ 「調査の方法」や「研究の方法」等として、研究課題・仮説 (②の最後に述べるか、独立した章を設けてもよい)、調査参加者・実験被験者、データ収集に用いた試験・質問紙等の道具、調査・実験の手続き、教育介入の内容と手順、分析の方法等を述べる。
- ④ 「結果と考察」や「結果と分析」等として、得られたデータのまとめ、その解釈、先行研究で得られた知見との比較等を述べる。「結果」と「考察/分析」の2章に分けてもよい。
- ⑤ 「おわりに」、「むすび」、「結論」等として、新しい知見の概要、教育への示唆、結果解釈上の留意点、今後の研究課題を述べる。

(イ) 研究論文： 理論的考察を行う研究論文 (ア) の論文構成のうち、③と④の代わりに、内容に応じて適宜章のタイトルを設け、新しい概念や研究の方向・方法の提示、複数の理論・方法の比較、入手可能な知見による妥当性の考察、当該研究分野に与える影響の説明等を議論する論文。

(ウ) 実践論文： 教育実践にもとづく知見を考察する論文

- ① 「はじめに」または「序論」として、取組みの動機・目的、普遍的問題として

の一般化の可能性等を述べる。

- ② 「問題の所在」や「解決すべき問題点」等として、取り組んだ教育実践上の問題点を、深刻さ、解決すべき理由、原因の考察等を述べる。ただし、①と②は1つの章にまとめてもよい。
 - ③ 「実践の内容」や「取り組み」等として、授業計画、教材、教授の手順、評価方法等を具体的に示しながら、実践の内容を説明する。
 - ④ 「効果」や「結果と解釈」等として、観察、評価資料、質問紙・面接・授業評価等の学習者からのフィードバック、第三者の評価等をもとに問題点がどのように、どの程度解決したか、新たな問題は生じなかったか、考えられる理由は何かなどについて説明する。
 - ⑤ 「おわりに」、「むすび」、「結論」等として、報告した教育実践の概要と今後の取り組みの展望を述べる。
6. 原稿を以上の要領で作成し、MSワードのファイル形式で保存したものを下記電子メールアドレスまで、11月30日必着で送付すること。(MSワードが使用できない場合は、電子メールにて個別に相談に応ずる。)

speltjournal@spelt.main.jp

竹内典彦(SPELT JOURNAL 編集委員長) 北海道情報大学経営情報学部先端経営学科

電話(代表)：011-385-4411

(ア) 投稿予定者は、9月30日必着で、メールによる投稿申込をしなければならない。

メールの件名には「*SPELT JOURNAL*第〇〇号投稿申込」と書き、メール本文には、執筆者(共同執筆者名も含む)、所属、連絡先住所と、「研究論文」・「実践論文」の別、及び200~300字の概要、及び日本語論文または英語論文の別を明記すること。

(イ) 完成原稿を提出する際は、メールの件名には「*SPELT JOURNAL*原稿」と書き、メール本文には、執筆者、所属、連絡先住所と、「研究論文」か「実践論文」かの別を明記すること。氏名・所属を伏せた原稿を下記編集委員長が作成し、査読者に送付する。

7. 原稿の採否は、査読後決定する。原稿が採用され、掲載される場合には、請求に応じて掲載費(1編5,000円)を支払うこと。
8. 審査後、修正を指示した上で採用する場合、指定された期日まで(通常1週間後)に原稿を再提出すること。応募段階で届け出た執筆者を採用通知後に変更することは認めないので注意すること。
9. 抜刷りは、第2号以降の電子ジャーナル化に伴い、現在発行していない。

(2020年9月4日改訂)

学会誌委員

竹内 典彦

三浦 寛子

査読協力者（五十音順）

杉浦 理恵

照山 秀一

『実用英語教育学会紀要』 *SPELT JOURNAL*

ISSN 2187-4123

2024年3月31日 発行

編集者 実用英語教育学会学会誌事務局
発行者 実用英語教育学会
事務局 〒065-8567
札幌市東区北16条東9丁目1番1号
札幌大谷大学社会学部地域社会学科
石川希美 研究室内
電話: 011-742-1651 (代) 内線 1969
FAX: 011-742-1654
E-mail: info@spelt.main.jp
URL: <http://spelt.main.jp>