

# Incorporating AI into English Language Learning: An Experimental Study Focusing on Autonomous Learning

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## Abstract

This study investigates the impact of integrating AI-powered tool, Plang, on English language learning among Korean EFL learners. Specifically, the study aims to examine the overall experiences of using the AI app in language learning and the impact of using the AI app on learners' autonomous learning. The two-month study employed a qualitative data approach derived from a mixed-method study involving pre- and post-survey, reflective journals, and in-depth individual interviews. Overall, the findings have shown that the integration of the AI-powered tool into the English language learning helped learners: (i) to enhance language skills, particularly speaking proficiency; (ii) to foster learner autonomy through a personalized feedback system; and (iii) to establish a new goal that facilitates active learner engagement. The analysis also points out some challenges learners faced in the learning process. Some important implications of this study are discussed for teachers who consider integrating AI-powered tools into English language teaching. Considering that there has been little research on incorporating AI tools into classrooms, it is recommended that further research should highlight more dynamic classroom cases by developing a flipped classroom model utilizing AI tools in English language teaching contexts.

**Keywords:** AI-powered tool, English language learning, Korean EFL learners, autonomous learning

## 1. Introduction

The advancement of technology has greatly transformed the educational environment today. Technology also plays a crucial role in renovating English education, with various mobile-based activities becoming prevalent and enriching the learning experience. For instance, platforms such as Padlet, and Quizizz are effectively utilized to elevate student engagement in the classroom. (Kim, 2022). Artificial Intelligence (AI) has recently become a powerful tool in English education; for example, reading comprehension and spoken communication (Crompton et al., 2024; Lee et al., 2023; Pokulevska, 2018) skills are improved when AI is incorporated into English education (Chea & Xizo, 2024; Xu et al., 2019). Junaidi (2020) also stated that AI-assisted instruction had a positive effect on learners' overall speaking performance, enhancing fluency, grammatical accuracy, vocabulary, and pronunciation, enabling students to interact with AI teachers without the limitation of time and physical classrooms (Hamuddin, 2018; Ahmad et al., 2021; Gardner et al., 2021, cited in Qiao & Zhao, 2023). Additionally, generative AI-powered tool for English learning such as Plang (see, research methodology section) and ChatGPT not only encourages student engagement but also takes into account individual levels, offering customized content tailored to each student's specific needs. These transformative tools have drawn out learners' interest, motivation, and autonomous learning. (Hamuddin, 2018; Junaidi, 2020; Vogt & Flindt, 2023; Lee, Kim, & Sung, 2023).

In line with this trend, the use of AI-powered tool in English education is also gaining popularity in Korea. For example, AI chatbots are being used to assist with English courses for young learners (Kim, Shin, Yang, & Lee, 2019). According to the Korea Times, the Seoul Metropolitan Office is investing significant resources in AI-based English-speaking education for young students under the name "English tutor robot." (The Korea Times, 2024) and the College of Education at Seoul National University has introduced a new course called "AI-integrated Education." Not only for young learners, but AI-assisted English programs for Korean college students have been introduced and positively impacted on enhancing English skills and self-directed learning

(Kan, Park, Lee, & Lee, 2023).

Mahendra et al. (2023) stated “the estuary to the use of technology is to promote students’ learning autonomy” (p. 123). Learner autonomy is described using various terms, such as learner independence, self-directed or autonomous learning, self-instruction, self-access learning, independent learning, and autonomous learning (ibid). AI-based programs can dynamically tailor learner pace, difficulty, and relevance of learning materials to match the needs of individuals at different proficiency levels, ensuring optimal learning outcomes. This adaptive strategy not only fosters self-directed learning and independence but also reduces the loss of motivation that often comes with static, one-size-fits-all instructional designs (Solidjonov, 2024).

Despite these potential benefits, AI-powered tools face several challenges, such as connectivity issues, unnatural interactions, concerns about personal data privacy, and “fears of losing a natural environment” and genuine emotions when interacting with AI (Viktorivna et al., 2022, cited in Crompton et al., 2024, p. 20).

Much research in Korean English education setting focuses mainly on how AI-powered tool enhance English language skills, along with their benefits and challenges. However, studies on improvements in learner autonomy when using AI apps are relatively rare. Thus, the central research question for this study was: ‘What are the impacts of generative AI English program on learners’ English language skills and learner autonomy? and what are the challenges AI users face?’

## 2. Literature Review

### 2.1 AI and English Language Skills

With the rise of AI use in ELT/L (English language teaching and learning), it is important to examine for educators and researchers the impact of using AI on language learning. In language learning context, AI tools developed and utilized have been diverse. For example, voice assistants offer a chat partner with a human-like voice such as Amazon Alexa, Apple Siri, Samsung Bixby, Microsoft Cortina and Google Home Assistant (Crompton et al., 2023). Chatbot capabilities expanded with AI provide extensive possibilities for language education, such as Microsoft's ChatGPT, Google's Bard, Anthropic's Claude and Apple's AppleGPT (ibid). Utilizing AI has provided benefits for English language learning in various ways. Studies investigated how AI-powered tools could impact on students’ speaking and listening skills (Chaikovska et al. 2024; Dizon & Tang, 2020; Kazu & Kuvvetli, 2023; Zou et al., 2020). Chaikovska et al. (2024) investigated students’ perceptions of using AI applications to improve English listening skills in ESP courses in a university. In their study, AI applications prove to be a powerful tool for improving students’ listening comprehension and motivation, offering language support and assessing learning outcomes. Extensive benefits of using AI have been aligned to speaking, with listening less aligned to those AI benefits in terms of language skills (Crompton et al., 2023). Kazu and Kuvvetli (2023)’s study supported the idea that pronunciation practice via AI gave positive influence on language learning. They investigated the influence of pronunciation via AI on vocabulary acquisition for high school EFL students. The finding of the study revealed that vocabulary acquisition with the aid of pronouncing with AI enabled learners to have a longer memory of words. Zou et al. (2020) also examined students’ perceptions of using AI-assisted mobile applications to enhance their speaking skills in English for academic purposes courses in higher education. Students expressed general satisfaction with using the AI applications to practice English and noted that their speaking skills have improved. Dizon and Tang (2020) examined Japanese EFL college students’ views of Amazon Alexa (intelligent personal assistants) for foreign language learning. The findings indicate that the students perceived Alexa as a valuable tool for language learning. In terms of usability, effectiveness, and satisfaction of using Alexa, the participants had generally favorable views of the virtual assistant for language learning. They reported that one of the advantages of using Alexa was the improvement of English-speaking skill, including English accent and pronunciation practice, meaningful interaction, and vocabulary acquisition. They had fun when they interact with Alexa.

In relation to literacy skills, AI applications such as ChatGPT, Chatpdf, QuillBot, Monica, and other AI apps provide the roles of vocabulary building, text comprehension, summarization, question-answering, explanation, and so forth (Chea & Xiao, 2024). Those kinds of AI tools could enhance students’ academic reading skills including vocabulary learning, critical thinking, and reading comprehension (Chea & Xiao, 2024; Srinivasan & Murthy, 2021). Even though students pointed out challenges of overreliance on AI tools and ethical issues of unreliable information, they generally found AI tools beneficial in developing reading skills in English (Chea & Xiao, 2024). Writing was an area using a variety of AI-powered assistance tools to support language learning. AI writing assistance tools can be categorized into four groups: automated writing evaluation tools, automated corrective feedback tools, AI translators, and automatic text generators (Alharbi, 2023). AI tools such as Grammarly, Google translate, and ChatGPT, can be used to aid students in enhancing their writing skills. Dizon

and Gayed (2021) examined the impact of Grammarly, an intelligent writing assistant, on the mobile writing quality of Japanese students learning English as a foreign language. The study demonstrated that AI had a significant effect on the learners' grammatical accuracy and lexical richness. Especially, synchronous corrective feedback and predictive text can relieve the cognitive burden of the participants and help them write more accurately and with lexical richness. In terms of automatic text generators, there have been challenges and issues in using them in the field of language learning. Eaton et al. (2021, cited from Alharbi, 2023) pointed out that even though intelligent text generators would be used widely across all disciplines, authenticity, creativity, and attribution could be debatable issues. The study suggests that learners and machines share authorship, and the assessment of such works will be a challenge for language educators. They will need to find ways to assign credit fairly and consistently.

Even though the benefits of AI have been more extensively aligned with speaking and writing than with listening and reading, integrating AI into English language teaching and learning have provided positive impact on all four skills of English language. AI-powered tools such as voice assistants and chatbots can enhance speaking and listening by providing interactive and engaging language practice. In relation to literacy skills, AI applications like ChatGPT, Grammarly, and other tools can provide corrective feedback, translation, and automatic text generation. They can also support reading comprehension, vocabulary building and critical thinking. It is crucial for educators to make informed decisions to enable the effective use of AI in teaching, harnessing its benefits to create a more dynamic and engaging learning environment for language learners.

## 2.2 AI and Learner Autonomy

Deci and Ryan's Self-Determination Theory (2017) suggests that humans have fundamental psychological needs for autonomy, competence, and relatedness. Among these psychological needs, learner autonomy has emerged as a crucial element in the field of English education and can be described in various ways. Benson and Voller (1997) stated autonomy mean the ability to control one's own learning. Holec (1981, p. 3) defines human autonomy as the "ability to take responsibility for one's own learning and to decide when and what to learn". Autonomy involves multiple dimensions, including independence, self-assurance, self-directed learning, and the deployment of individualized learning strategies (Lan, 2020).

Considering these definitions of autonomous learning, it seems essential to empower students to manage their own learning, take responsibility, and make decisions about their learning activities. They need to actualize their personalized learning to develop their independence and the ability to choose what (when, how) to be applied for their learning process. This development of autonomy is especially important for language learners, allowing them to actively pursue their language learning goals outside the classroom.

Cotterall (1995) identified six key factors that influence autonomous learning in the context of language education. These factors include: (i) the teacher's role; (ii) the role of feedback; (iii) learner independence; (iv) learners' confidence in their study abilities; (v) their experiences with language learning; and (vi) their approach to studying. What is more importantly, an autonomous learner reflectively engages in his or her learning (Arnold, 2006; Benson, 2001; Little, 1994). Therefore, they engage in regular reflection on their learning process and take active control of their educational journey (Lan, 2018). By planning, monitoring, and evaluating their progress (Yeh & Lan, 2018), they fulfill their learning responsibilities. This practice not only enhances their sense of ownership over their learning process but also fosters greater independence and self-regulation.

As AI has been incorporating into English learning, many researchers argued that AI-powered programs can meet these psychological needs, enhancing learner autonomy by providing personalized and adaptive learning experiences (Moybeka et al., 2023; Wei, 2023; Aini et al., 2024; Lan, 2020). In addition, technology in the hands of the learners could be more effective since they are the generation born with technology. For example, Lan (2020) conducted research incorporating VR-based AI platform into English classes at a Taiwanese elementary school and found that it significantly enhanced students' creativity and autonomy. In the study, students engaged in collaborative learning with little teacher support or intervention. The study highlighted that when students take ownership of their learning, they can become "responsible, creative, and productive". In this regard, the role of the teacher in classroom could be reduced gradually but not totally as they direct learners to be more autonomous (Mahendra et al., 2023).

Aini et al. (2024) also utilized various AI platforms to teach English speaking skills to college students, such as 'Duolingo', 'Busuu', and 'HelloTalk', to teach English speaking skills to college students, and these led to significant improvements in both students' speaking abilities and their autonomy. However, the researchers stressed the importance of thorough preparation before implementing AI learning platforms to achieve maximum effectiveness. This preparation involved setting objectives, defining learning outcomes, engaging in trial and

error, and assessing learner results.

Much research has explored the interplay between autonomous learning (or motivation) and the integration of ChatGPT into English language classes. Karatas et al. (2024) investigated the effectiveness of ChatGPT in foreign language teaching. Their research found that the use of AI applications has the potential to improve writing, grammar, vocabulary acquisition, as well as motivation, engagement, and learner autonomy. This is in line with the findings from Yildiz (2023) who highlighted that ChatGPT helped fostering learners' autonomy by getting individual feedback, personalized support, and guidance from ChatGPT.

In summary, for English learners using AI-powered tools, enhancing autonomy involves fostering students' ownership of their learning, their active role in the learning process, and their willingness to engage in self-directed and independent learning rather than being passive recipients of learning from a teacher.

### *2.3 Challenges in Using AI for English Language Learning*

Comparing the benefits of the AI in ELT/L, challenges of using AI on the studies did not appear to be well reported, and many studies have reported positive research findings than limitations and problems (Crompton, 2023). According to Crompton et al. (2023), 67% (27 studies) of the 43 studies did not reveal challenges of using AI in ELT/L. Nonetheless, some studies revealed diverse challenges in integrating AI in language learning. Technology breakdowns are a common problem, including connectivity issues, computer or mobile functions, program functions, and so forth. Another problem is limited capabilities of AI platforms. Ericsson et al. (2023) reported that learners in their study called for more improvement in using virtual humans (VHS) as conversational agents. Learners expressed frustration with technical issues and constraints of the system, such as not being understood or heard by the system. In addition, the system only accepted a few answers as in the manual to every question, which makes learners to repeat themselves several times and be bored. That is, using AI in language learning could cause high level of lack of creativity and space for learners' spontaneity (Kushmar et al., 2022).

Anxiety of AI in language learning is another problem for learners. Kushmar et al. (2022) examined what learners are afraid of using AI in English language learning and analyzed the responses of 418 college students. In their study, most of the respondents were afraid of that cyber-attacks can happen to their personalized accounts, and there might be a risk of losing personal information. In addition, learners are afraid of losing a natural environment with speakers and their real emotions. Furthermore, they fear the assessment by AI because of their pronunciation, accent, and ways of speaking. Another compelling challenge is that available AI platforms in English language learning mainly provide native English phonetic representations, and non-native accents were not recognized (Zou et al., 2020). AI speaking applications may be contributing to carry messages about standard language use (Crompton, 2023). There is a need for AI platforms to be able to recognize non-native English accents to help students improve their speaking skills (Zou et al., 2020).

Ethical challenges and potential risks of AI applications such as data privacy and algorithmic bias are to be a concern to be considered over this field of inquiry (Akgun & Greenhow, 2022; Kostka & Toncelli, 2023; Manire et al., 2023). One of the biggest issues relates to the privacy concerns of learners and teachers, as privacy violations might occur when many people expose an excessive amount of private information in online platforms. Moreover, AI tracking systems gather detailed data to foresee students' learning performances, weaknesses, and strengths. However, this monitoring and tracking students' actions and performances can make students feel unsafe and may limit their participation in learning. Additionally, bias and discrimination are critical concerns in AI ethics in foreign language education. Societal biases related to gender and race issues are problematic cases, especially in AI models of language translation (Akgun & Greenhow, 2022).

While AI offers many benefits for English language learning, it is crucial to address the challenges and concerns that accompany its integration into ELT/L. Technology breakdowns, limited capabilities of AI functionalities, lack of creativity and spontaneity need be addressed. Moreover, anxiety about AI use and fears concerning cyber-attacks, data privacy, ethical concerns such as data privacy and algorithmic bias, and inability to recognize non-native accents further complicate AI's role in language learning. Language educators need to address these challenges and develop strategies to mitigate shortcomings, ensuring more secure and effective learning.

### **3. Research Methods**

This present study employed a qualitative, mixed method research approach over a two-month period to gain a comprehensive understanding of the participants' experiences with AI-powered language learning tool. The research design integrated quantitative and qualitative methods to enhance the depth and richness of the research

findings. Data were collected through several methods: pre- and post-survey questionnaires, students' reflective journals, and four semi-structured individual interviews.

### 3.1 Context

The course, English speaking and listening, was offered at a university as an optional module for all major students, aiming to help students to develop English speaking and listening. The course was consisted of two separate sessions: focusing on listening and speaking separately. In order to build listening skills as the purpose of the course, traditional classroom teaching format with a textbook was adopted in classroom. On the other hand, to enhance speaking skills, AI-powered tool was incorporated into language learning. Utilizing AI app was the outside of class activity, and during the class, students have time to write reflective journal and share their experiences of the app with peers. Every week, students wrote the reflective journal and share what they have learned and experienced from the app. The instructor, one of the researchers, introduced students to the app including how to use it, allocating the time constraint of more than 15 minutes per day. During the class, the instructor's roles were to serve as a facilitator, providing instructions on app functionalities and encouraging them to participate actively in language learning. She also fostered group discussions about experiences with the app and sharing tips.

The artificial intelligence app used in this study is Plang, an interactive language learning app which offers quizzes, a variety of exercises, virtual characters, simulations of real-life situation to practice language skills. Plang has been developed in Korea in 2019. The AI platform has been widely used in many colleges in Korea. It is on the list of recommendation by Education Commission Asia, an association which has been developed in 2020 with aiming at the advancement in educational innovation. This organization hosts academic conferences, training programs, and seminars, and suggests useful AI platforms for educational advancement. Plang is one of the useful AI apps suggested by the organization. It utilizes machine learning algorithms to tailor learning experiences based on learners' proficiency level and preferences, ensuring personalized and adaptive learning approach. It also employs speech recognition technology allowing users to practice pronunciation effectively and provides immediate corrective feedback on various aspects of speech. The app engages learners in simulated conversational videos, enabling them to practice language skills in context and features progress tracking system that monitors and analyzes learners' performance. The following is a sample figure of the app.

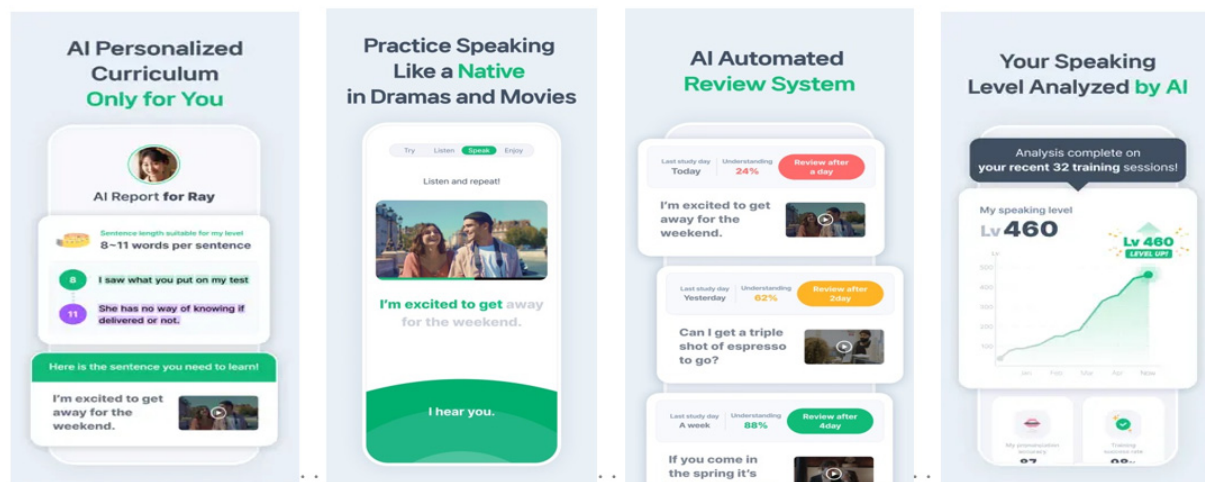


Figure 1. The Sample Images of Plang App

### 3.2 Participants

This study involved 22 students, consisting of 10 males and 12 females, majoring in global business, social welfare, English, early childhood education, Chinese language, and Japanese language. All participants were enrolled in the 'English listening and speaking' course at the university. Their self-reported English proficiency levels varied: elementary (1 student), pre-intermediate (8 students), intermediate (7 students), upper-intermediate (5 students), advanced (1 student). The participants' academic years were as follows: freshmen (4 students), sophomore (7 students), juniors (8 students), and seniors (3 students). Among the participants, four students took part in individual interviews. Table 1 shows the background information of the students who participated in the individual interviews.

Table 1. Background information of interviewees

| Participants | Grade | Major            | Gender | English proficiency |
|--------------|-------|------------------|--------|---------------------|
| S1           | 1st   | Global Business  | Female | Upper-intermediate  |
| S2           | 2nd   | Global Business  | Male   | Intermediate        |
| S3           | 2nd   | English Language | Female | Pre-intermediate    |
| S4           | 3rd   | Social Welfare   | Male   | Elementary          |

### 3.3 Research Process

This study adopted qualitative mixed method design in order to examine the impact of utilizing AI powered app, Plang, on students' English language learning. It employed a mixed sampling approach: (i) a 'homogeneous sampling' was used for the questionnaire survey and reflective journals, which is selecting participants from a particular group relevant to the study (Dörnyei, 2007); (ii) 'convenience sampling' for the interview sessions according to participants' availability and accessibility (Patton, 2002). All students (22 students) took part in surveys and journal writing, and among them, four students were interviewed individually. The research was conducted as the following stages. At first, pre-survey was conducted regarding personal backgrounds of participants such as age, year, gender, proficiency level, and expectation from language learning by using the app. The instructor also explained in detail functionalities of using the app to participants and allotted time constraint for using the app - more than 15 minutes a day for a two-month period. After that, students utilized the app outside of class every week, and the instructor could check all students' learning progress and history from the app.

Every week in class, students wrote reflective journal and talked about their experiences of using the app with peers. Reflection is considered the process of critically examining and analyzing learning experiences through planning, self-monitoring, and evaluating (Richards & Farrell, 2005). In this study, the primary aim of reflective journal writing is for learners to review and evaluate what they learned during the previous week, self-monitor the learning process, and plan for the next week. The journal writing prompts include what learners have learned from the app, how they utilized it, difficulties in learning English utilizing the app, reflections on participation and learning management, planning for the next week, and insights gained from discussions with peers. At the last week of the period, overall evaluation of using the app for language learning was conducted through post-survey. It explored users' experiences of the app, learner participation, the effectiveness of using the app for learning English in terms of language skills, confidence and interest, overall satisfaction of utilizing the app, and so forth. Survey questionnaires were developed and modified based on the purpose of the study, drawing from two previous studies: Belda-Medina and Calvo-Ferrer (2022) and Edmett et al. (2023). Lastly, semi-structured in-depth interviews of four students were followed and recorded in order to examine learners' experiences of the app. The interview questions involve the effectiveness of using the app in enhancing language skills, its impact on motivation and interest, how to manage learning, the role of reflection, aspects to be improved regarding learner themselves and the app, and so forth.

### 3.4 Data Analysis

The researchers meticulously scrutinized the students' survey, reflective journal entry and interview data. These multiple resources enabled data triangulation providing a deeper understanding of the findings. The survey data were analyzed quantitatively and qualitatively. The data from interviews and reflective journals were analyzed qualitatively. An inductive approach was adopted for the qualitative data analysis. Recurring codes, categories, patterns, and themes were emerged and identified out of data through a coding process: organizing the data, sorting the data, understanding the data, interpreting the data, and explaining the data (Bingham, 2023; Patton, 2002). The recurring themes were reexamined to ensure consistency with the data obtained from the surveys. In order to enhance reliability of the research findings, both researchers double-checked the analysis of the data.

## 4. Findings and Discussion

### 4.1 Overall Experiences of Using AI in Language Learning

This section examines the aspects of overall experiences of language learning through the use of the AI-powered tool, based on survey, reflective journal, and interview data. Specifically, two factors were identified from the data: (i) AI and English language skills; (ii) challenges in using the AI app for language learning.

### 4.1.1 AI and English Language Skills

The survey questionnaires concern with the overall experiences of using the AI app in language learning. A total of 22 students participated in the survey. Regarding the question about the overall satisfaction with the AI-powered tool, participants’ responses indicate a generally high level of satisfaction among them. It was rated at 4.36. Participants generally seemed to be satisfied with the experiences of using AI in language learning. Regarding the convenience of using the AI application, it was scored at 4.09, which shows that students generally found the tool to be user-friendly. Especially, the usefulness of learning materials provided by the app was notable, with the highest average score of 4.63. It indicates that students regarded the materials as highly effective and beneficial. In addition, the impact of using the AI app on English language learning was rated at 4.09, which shows participants’ positive experiences and enhancement in language learning. In response to the question regarding the impact of reflective journal on learning management, participants gave an average score of 4.17. It suggests that reflective journal writing positively influences them to manage and regulate their learning, thereby helping and facilitating their learning process. The following figure illustrates the results of the study.

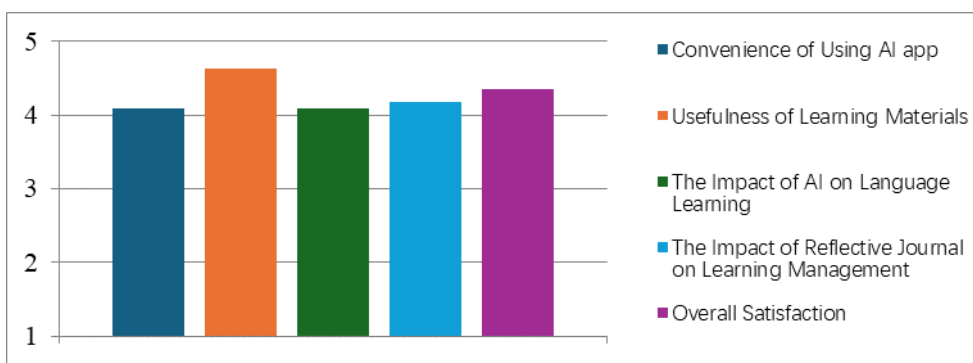


Figure 2. Satisfaction with the AI app

In response to the survey question about which English skill benefited the most among four skills, 12 students (54.5%) among 22 students reported the greatest improvement in speaking skills, which is the most positively impacted skill. As Dizon and Tang (2020) noted, one of the advantages of using AI was the improvement of English-speaking skill, which is a part of language outcome. Only four students noted an improvement in English writing skills when integrating the AI app into language learning. Listening and reading skills were each identified by three students as the most benefited area. Figure 3 highlights the result of the study, speaking as the primary skill enhanced by the AI tool.

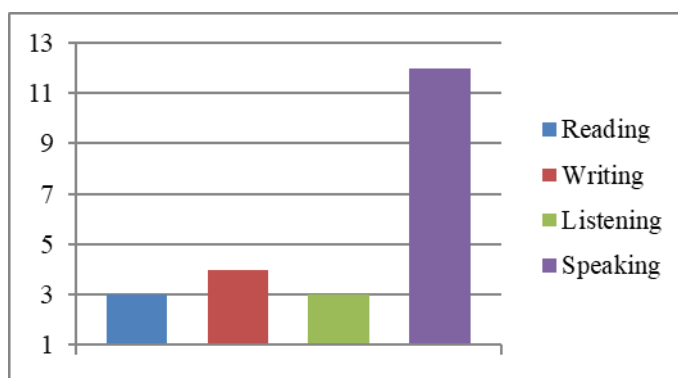


Figure 3. The impact of the AI app on language skills

Participants’ statements in the survey and interviews also indicate several key points regarding the impact of AI-based English learning tools on language learning. In relation to speaking, participants highlighted that practicing pronunciation with AI led to significant enhancements in language learning. They emphasized the effectiveness of AI in providing tailored feedbacks and opportunities for repetitive practice of correct pronunciation. In addition, understanding various meanings of words in contexts of videos and constructing sentence structure in contexts were also considered as beneficial aspects of using the AI app. It could facilitate a more nuanced understanding of language and critical thinking in language production. AI-powered tools can be

valuable tools to provide the opportunities for pronunciation practice, meaningful interaction, and vocabulary acquisition (Dizon & Tang, 2020). In this study, participants reported that overall, the AI app could significantly aid in the development of speaking skills and confidence among English language learners. Students noted as follows:

“My pronunciation skills have improved. I think it was due to consistently practicing incorrect pronunciations through AI learning. And my understanding of the original meanings of words has deepened. I was able to grasp the fundamental explanations of why a word is used in a particular context.” (S9, survey)

“I feel somewhat motivated because I can see that the more, I practice, the more I grow, even if it's just a little. As I continue, I realize that I can improve gradually. I enjoy speaking English, but I have often struggled with hesitation when constructing longer sentences. However, I've noticed that this hesitation is gradually decreasing as I engage in practice.” (S1, interview)

Moreover, personalized and customized language learning opportunities offered by the AI app played a crucial role in language learning. Participants in this study expressed that practicing sentence structures suitable for their proficiency level enabled them to build their skills progressively, making it easier for them to grasp new meanings and language structures. Providing personalized and adaptive instruction offering individualized feedback and interactive learning materials tailored to students' proficiency levels enables learners to practice language skills in effective ways (Mushthoza et al., 2023). Managing time for learning was also addressed. The participants stated that the convenience of using the AI app allowed students to study without the constraints of time and place. Students expressed their thoughts as follows:

“I appreciated the ability to study at my convenience, without constraints of time and place, which significantly contributed to improving my speaking skills.” (S3, survey)

“I was able to learn with sentences that were suitable for my level, and I was also able to observe my gradual improvement, which motivated me to continue learning.” (S5, survey)

Overall, the AI app utilized in the study could significantly enhance English language learning, particularly in developing speaking skills. The personalized and adaptive learning provided by the AI app, including individualized feedback and interactive learning materials tailored to their proficiency levels, was highlighted as a crucial factor in students' language learning. The positive experiences shared by participants emphasize the importance of integrating AI in language education, fostering student engagement and motivation.

#### 4.1.2 Challenges in Using the AI App for Language Learning

In utilizing AI-powered tools in language learning, technology breakdowns and limited capabilities are common problems (Crompton et al., 2023; Ericsson et al., 2023). Learners expressed frustration with technical issues and constraints of AI system. Participants in this study also identified technical limitations within the AI system, including login errors and instances where the app would freeze or cease functioning. Moreover, the AI system sometimes did not recognize voices when multiple voices overlapped, leading to difficulties in voice recognition. Participants expressed the need for improvements in system stability and speech recognition capabilities to mitigate these issues.

“There were more system errors in the app than I expected, and there were instances where it would freeze or stop functioning.” (S10, survey)

“I have noticed that when multiple voices overlap, this AI has difficulty with accurate recognition. Therefore, I hope that a device will be developed that can more effectively recognize my voice clearly.” (S1, interview)

The lack of flexibility and adaptability in the AI was another challenge in language learning. Participants expressed that the AI's feedback requires exact memorization of phrases to progress, which could act as a barrier to advancing their learning. Using AI in language learning can often cause lack of creativity, and the system only accept a few answers as in the manual (Kushmar et al., 2022). This issue can hinder the learning process and may deter students from engaging with the material. In addition, challenges with pronunciation were noted, particularly for students who have learned accents other than American such as British or Australian. The AI's adherence to American pronunciation norms indicates a lack of adaptability in its language recognition capabilities. Developing AI system that can recognize non-native English accents is essential for helping students enhance their speaking skills (Zou et al., 2020). Otherwise, AI speaking applications may promote a standardized notion of language use (Crompton, 2023). Enhancing the flexibility of feedback and the adaptability in recognizing non-native English accents can improve the AI's user experiences and learning effectiveness.

“I think that the feedback provided by the AI lacks flexibility. Additionally, the review process requires perfect



memorization of phrases, which makes it difficult to progress.” (S17, survey)

“Pronunciation was somewhat challenging. I had learned British pronunciation for almost three years and also studied Australian pronunciation. However, because the AI indicated my pronunciation was incorrect, I had to try to mimic an American accent as much as possible.” (S19, journal)

Moreover, participants also highlighted functional limitations concerning the AI’s capabilities to understand their intent. Sometimes, the AI failed to grasp students’ intentions accurately, leading to responses that did not align with what they meant. As noted in the interview, this limitation could lead to feelings of discomfort and dissatisfaction among students. Participants emphasized the need for enhancement in the AI’s natural language processing capabilities to ensure that user intent is accurately interpreted and conveyed.

“Sometimes, when I answer questions, the AI changes my responses and they end up different from what I meant, which feels uncomfortable. It’s helpful when AI creates responses, it should also keep the original intent of my answers.” (S4, interview)

When engaging with AI-powered tools, participants faced significant challenges such as a range of technical issues, the lack of flexibility and adaptability in the feedback, misinterpretation of students’ responses, and other limitations. Those challenges led to discomfort and dissatisfaction among participants, which could hinder their learning experience. Even though AI-powered tools can have positive influence on language learning, it is essential to address these multifaceted challenges to promote effective language learning. Continued development of these technologies will be crucial in providing better support for learners’ diverse needs and learning styles.

#### *4.2 AI and Learner Autonomy*

This section explores potential factors that enhance learner autonomy through the use of AI-powered tools, based on the in-depth interview data and reflective journal writing. Specifically, three primary factors were identified from the data: (i) a personalized feedback system from the app; (ii) writing a reflective journal after using an AI app; and (iii) engaging in peer discussions following the use of the AI app.

##### *4.2.1 Autonomous Learning: Through Using AI-powered Tool*

Djoub (2016) identified one of the advantages of MALL (Mobile Assisted Language Learning) as providing students with new learning opportunities that they cannot experience in the traditional classroom. He mentioned learning without fixed time constraint, fast corrective feedback, and various modes of delivery, all of which increase learning flexibility and ultimately enhance learner autonomy. In this regard, AI-powered tools can be tailored to the learner’s level and context, helping them decide what, where, when, and with whom their learning occurs. (Cochrane & Bateman, 2011; Narayan & Herrington, 2014; Narayan et al., 2019, cited in Lee et al., 2023).

“I consistently used the app, and it provided me a score that measures my English proficiency. Seeing a steady improvement in my scores gave me a sense of confidence and accomplishment.” (S1, interview)

“Since I mostly used the app during my commute, I found it difficult to make substantial progress in speaking”. However, the AI consistently provided feedback, helping me identify which areas needed improvement. I tried not to the same mistake and I feel that my English proficiency has benefited greatly from the feedback. I believe this ultimately boosted my confidence in using the expressions.” (S3, interview)

“For me personally, the greatest sense of achievement came from seeing my scores steadily increase, which served as a clear indicator of my English improvement and motivated me to continue. However, as the rate of improvement in my scores slowed down, my interest started to decrease.” (S1, interview)

As seen from the interview data above, the first student (S1) mentioned that personally seeing his level score improvement gave him a sense of confidence and achievement. This personalized content generated and tailored to individual situations and levels, is something difficult to experience in traditional classroom settings, especially in large classes common in Asia. The student feels that by studying consistently at his own pace without left behind, not only his English skills, but motivation has been improved. The second student (S3) receives individual feedback from the AI-based app identifying areas that need improvement. This is in line with Gawate (2019) who classified the benefits of AI-based learning into eight categories. Among these, the fast feedback system and teaching-learning personalization are some of the key factors that significantly enhance learner autonomy. Meanwhile, some students are applying (or want to apply) what they’ve learned from the AI app in real-life situations.

“I’m using it effectively in conversations with a native English-speaking friend I met through language exchange

program”. I actually use the sentences I learned in a real; I think that studying with AI-based app is not just practicing English with a machine, but making it possible to interact with people face-to-face.” (S1, interview)

“I’m planning to travel to Thailand during summer vacation, and I hope to use the expressions I’ve learned from this app. I want to have conversations freely with people from different countries. Until then, I’ll study hard using the app.” (S4, interview)

As mentioned above, students want to apply what they’ve learned in their daily lives. Instead of allowing their learning to stop at the lesson, they set personal goals and actively work towards achieving them. As Crompton (2024) stated, “self-regulation refers to the ability to manage and control one's thoughts, emotions, behaviors and physiological responses to achieve personal goals and maintain wellbeing” (Crompton et al., 2023, p. 18), and this ultimately leads to “more autonomous and self-regulated learning”, making it “more effective and helping to alleviate anxiety” (ibid, p.19). On the other hand, there is some intriguing interview data reveals that a few students felt more confident speaking because AI isn't human, which prevented them from feeling embarrassed. One student comment:

“When speaking in front of peers and a professor, I often feel shy and anxious about making mistakes. However, using an AI app boosts my confidence and reduces my shyness because it isn't a human”.

Hayashi & Sato (2023) support this by suggesting that engaging with ChatGPT in a second language helps reduce language anxiety, promotes a positive and autonomous learning, and increases opportunities for language interactions.

#### 4.2.2 Autonomous Learning: Through Writing a Reflective Journal

Most of the interviewees mentioned that writing reflective journals greatly helped increase their academic ability, achievement, and self-regulated learning. As mentioned in the literature review section, Lan (2018) stated that learners should engage in regular reflection on their learning process to enhance learner autonomy. One student comment:

“Writing reflective journals each week is quite stressful, as I had to consistently document my progress. This task sometimes felt burdensome, yet it also helped me reflect on my learning process and identify areas where I could improve. To improve my weak part, I tried to review and plan my study.” (S3, interview)

Another student also expressed her feeling about writing a reflective journal as follows:

“As I write my reflective journal, I find myself looking back on my week. This was also a time for deeper self-reflection and emotional insight” (S1, interview)

Regular reflection in self-directed learning plays a crucial role in increasing motivation, enabling self-evaluation, and planning the next stage of learning. The following excerpt in journal writing illustrates the student's self-reflection and dedication to his studies.

“Consistency is crucial in learning English, but I couldn't focus on my study. I'm very disappointed that I couldn't maintain it. I plan to set a new goal and try to focus on the study in the future.” (S14, journal)

#### 4.2.3 Autonomous Learning: Through Peer Discussion

Imani et al. (2021) stated that “teacher-learner interaction is replaced by learner-learner interaction and learners are responsible for their own learning rather than waiting for the teachers to guide them through every step of learning which leads to developing learner autonomy” (p.108). Likewise, most of students in the study mentioned discussion with peers about their learning fostered learner autonomy. Some excerpts from journal writing illustrate this well:

“All my team members seemed highly motivated to learn English. Seeing that made me think, "I need to push myself as well." (S10, journal)

“I realize that everyone has similar challenges. For example, constructing longer sentences and using difficult vocabulary are challenges we all share, which makes me feel reassured that I'm not the only one struggling”. (S12, journal)

“My partner mentioned that studying every day was harder than expected, and I realized that we shared the same feeling. My peers and I discussed both the problems and the benefits of the app, and I gained a lot of motivation from these conversations. When we talked about the app's strengths and weaknesses, I realized how differently others viewed it, and it made me think about what to focus on next time. This was motivating for me.” (S9, journal)

“While discussing time management with my peers, I noticed how they found time for their own activities. This

led me to reflect on my own approach and think about how I could dedicate more time to learning English in the coming week. These small conversations with my friends have been somewhat helpful in improving my English studies.” (S8, journal)

Students gained new goals, motivation, and insights into time management, pace of study, and English learning through conversations with their peers rather than through guidance from their professor. This new goal setting or motivation for studying indicates that learners are starting to take control of how they approach and direct their language learning (Oxford, 2017).

## 5. Conclusion

This study explored the impact of AI app, Plang, on English language learning for Korean EFL learners in Korea. The results of the study support the idea that AI-powered tools can promote language learning. Participants in this study generally expressed high level of satisfaction and noted the AI tool’s positive impact on their language learning. Notably, the AI app could significantly aid in developing speaking skills among the four skills. Personalized and customized learning opportunities including tailored feedback, interactive learning materials, and checking learning progress and history played a crucial role in the enhancement of language learning. On the other hand, some challenges were associated with using the app. Participants addressed technical limitations within the AI system, a lack of flexibility in AI feedback, difficulties in recognizing different accents, and other functional limitations. The challenges led to discomfort and dissatisfaction among participants, which might hinder their learning experience.

Regarding learner autonomy, the use of AI has increased students' autonomy in the following three aspects. First, the AI-powered app provides rapid feedback tailored to individual levels, which ultimately enables learners to monitor and evaluate their learning process by themselves. This also helps them set new goals and plan their own learning. Second, by writing reflective journals, students have improved their self-directed and regulated learning as they reflect on themselves and strive to address their shortcomings in the next stage of learning. Third, after learning through the app, discussions with peers allowed them to share their challenges and encourage each other. Additionally, they received positive stimulation and motivation by observing their peers.

Practicing language skills with AI can lead to significant enhancement in language learning by providing instant corrective feedbacks, repetitive practice opportunities, and personalized learning experiences. Instructors are encouraged to incorporate AI-powered tools to offer adaptive and personalized learning opportunities to students. Especially, the opportunities to practice speaking with AI and gain personalized feedback is a critical need in English language learning, as it can address some limitations present in traditional language classrooms. These tools can help mitigate constraints in traditional classrooms such as teachers' inability to provide individual feedback for every student, the lack of usefulness when conversing with peers, and other challenges posed by large class sizes (Edmett et al., 2023). To enhance learner autonomy through the use of AI app, the role of the teacher is crucial. For example, teachers should provide reflective prompts that allow students to reflect after learning and encourage discussions among peers, thereby giving students the opportunity to take charge of their own learning process and take responsibility and control. The teacher's continuous yet minimal intervention in students' learning processes is also considered an important factor. However, there have been ongoing challenges associated with AI, such as technical, functional, and other limitations. In those contexts, educators' roles will be crucial. They need to provide to students' proper guidance, mentoring, and content curation, addressing potential biases in AI-generated materials.

This study also highlights some limitations. After finishing the learning period, students suggested more of teacher's interruption and guidance to maximize the effectiveness of language learning using the AI. Actually, in this study, the instructor's role was to facilitate learning by explaining app functionalities, encouraging them to participate in language learning and reflective process through journal writing, and fostering group discussions about experiences with the app. However, students had expected more of the teacher's roles. This indicated the need for more pedagogical considerations and a clearer definition of teacher roles in integrating AI tools into ELT/L. Admin (2023) emphasized the importance of collaboration between human teachers and AI to maximize the benefits of AI in language learning. As many educators believe, AI might be unlikely to replace the need for human teachers any time soon and may never do so (Edmett et al., 2023). Therefore, when integrating AI-powered tools into ELT/L, language teachers need to focus on providing more structured guidance while addressing and meeting students' personal learning needs (Admin, 2023). There is a need to develop a flipped classroom model to maximize personalized student development utilizing AI tools. Teachers need to examine how effective pedagogical practices can be integrated with AI (Crompton et al., 2023). More research is needed to identify “which tasks could, should or should not be assisted by AI and where in the process a human still

needs to be involved,” (Edmett et al., 2023, p.46), which will undergird the development of a flipped classroom model for ELT/L.

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