Perceptions of High School Students on AI Chatbots Use in English Learning: Benefits, Concerns, and Ethical Consideration[*]

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This study explored high school students' perceptions of using AI chatbots in English learning. Specifically, it aimed to gauge the breadth of chatbot utilization and discern perceptions surrounding potential challenges linked to their use. Thirty students from a high school took part in the survey. Data analysis involved frequency, mean and an independent sample t-test. The findings are as follows. First, students recognized the importance and value of chatbots highly and perceived their usability positively. However, their previous experience with chatbots did not sway this perception. Second, students perceived using chatbots in English learning as very beneficial. Especially, those with chatbot usage experience have a more positive perception compared to those without experience. Third, students were relatively aware of potential ethical issues with using chatbots. They were particularly concerned about plagiarism and copyright issues and potential personal information breaches regardless of their experience with chatbots. They also perceived potential educational issues, fearing over-reliance on chatbots might hinder their exploratory learning or lead to copying assignments directly, missing out on learning opportunities. However, those without experience were more skeptical than those with experience. The implications and suggestions derived from these findings are also discussed.

Keywords: AI chatbots, perceptions, educational use, ethical issues

1 Introduction

The Fourth Industrial Revolution has ushered in an era where multiple technologies are converging and advancing at a rapid pace. Notably, the introduction of AI not only promises significant potential advancements in industries like manufacturing, economics, and healthcare but is also gaining

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attention as a potential replacement for future human labor. Similarly, in the field of education, there is an increasing trend to incorporate AI technologies, leading to efforts in utilizing Artificial Intelligence in Education (hereafter AIED) (Chun et al., 2021; Park & Shin, 2017). As a result, learners can now receive detailed and accurate information from big data collected and analyzed via AI. Moreover, they can get diagnoses of their weak points and receive personalized problem sets, facilitating individualized and proactive education (Holmes et al., 2019).

Among AIED, AI chatbots that can converse through voice or text as if they were real humans are gaining attention as assistant tools for foreign language acquisition (Kim et al., 2019; Lee, 2018; Lee et al., 2019; Shin, 2019). Such AI chatbots analyze learning problems and search for related learning materials through interactions with learners, offering the advantage of providing answers without spatial or temporal constraints. Furthermore, unlike traditional systems that stick to predetermined Q&A, AI chatbots can converse like humans. This allows learners to learn languages through free dialogue with the chatbot without specific learning materials, making them widely used in language education (Kim et al., 2021).

Recently, with the rapid development of AI technology, generative AI like ChatGPT has been influencing education as a whole and is anticipated to have a significant impact on English education. The incorporation of such generative AI tools is expected to rise in various applications and platforms (Maeng et al., 2023). ChatGPT not only provides information in response to questions on diverse topics, akin to Q&A chatbots, but it also offers services such as programming code writing and modification, multilingual communication, content creation and translation, foreign language expression error correction, counseling, and discussions－services that were hard to find even in previous AI-based technologies (Shin et al., 2023).

The 2022 revised national curriculum also emphasizes the need for educational innovations to swiftly adapt to the rapidly changing digital transition. It underscores innovative curriculum designs, the integration of online and offline education, and the utilization of teaching and assessment methods to realize digital foundational literacy education, including AI and software education (Ministry of Education, 2022).

However, despite the advantages of using AIED in the educational sector, there are also negative perspectives. A prime example of this is the case with the AI chat program "Iruda," which was launched in December 2020 and faced ethical issues like personal data leaks and the use of hate speech (Park, 2021). Such negative perceptions related to personal data leakage and privacy breaches due to AI usage were also evident in an online survey and group interviews conducted by the Presidential Committee on the Fourth Industrial Revolution in 2021. This survey, titled "Public Perception Survey on the Popularization of Artificial Intelligence," targeted 3,500 citizens aged 14 to 65. According to the results, while there was generally a positive perception of the

reliability of AI technology, the majority also harbored simultaneous hopes for the positive changes AI can bring and concerns about its side effects, such as privacy breaches and personal data leaks (Kim, 2021).

From an educational perspective, there are concerns raised by various preliminary studies indicating that the functionality of AI chatbots could impede learners' critical thinking and academic integrity, leaving them vulnerable to inaccurate information. There have also been reports of learners using ChatGPT for essay writing or solving exam questions, leading to a surge in dishonest practices (Korn & Kelly, 2023). In a perception survey among general citizens concerning the ethical implications of using AI, approximately 72% expressed that ChatGPT itself poses ethical issues (Soopsci, 2023).

As AI becomes integrated into our lives and utilized in the educational sector, it is pivotal at this juncture to examine how learners perceive the application of AI technology in education. With the emerging role of AI chatbots in English education, capable of being employed not just in speaking and listening domains but also in reading and writing, understanding learners' perceptions of AI chatbots will provide significant foundational data for effectively conducting classes that harness these chatbots in the future. In this context, the present study aims to explore high school students' perceptions regarding the use of AI chatbots in English learning. Specifically, it seeks to understand the extent of chatbot utilization and discern perceptions concerning potential issues arising from their use. To achieve the objectives of this research, the following research questions have been formulated:

  1. How do high school students perceive the significance and usability of AI chatbots for English learning? Are there perceptional differences between students who have and haven't used such chatbots?

  2. How do high school students perceive the pros and cons of using AI chatbots for English learning? Are there perceptional differences between students who have and haven't used such chatbots?

  3. How do high school students view the ethical and educational implications of using AI chatbot? Are there perceptional differences between students who have and haven't used such chatbots?

2 Method

2.1 Participants and instrument

This study aimed to examine the perceptions of high school students in Suwon, Gyeonggi-do, regarding the use of AI chatbots in English learning. Thirty students from a first-year class at a coeducational high school participated in this research. The school organizes separate classes for male and female students, and the survey was conducted in the class that consisted exclusively

of female students. Among the participants, 53.3% had prior experience using the AI chatbot, ChatGPT.

The survey used in this study consisted of 34 items. Based on Lopez and Qamber (2022), the survey items were developed. Further modifications and enhancements were made with reference to a survey conducted by Soopsci (2023), especially to frame questions around potential problems arising from the use of chatbots. The survey inquired about the students' background information such as gender and experience of using an AI chatbot. It also measured perceptions regarding the utility of chatbots and awareness of potential issues associated with their use. The questionnaire was formatted using a Likert 5-point scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Table 1 shows the composition of the survey items.

Table 1. Composition of Survey Questions and Reliability

Category		Item description	No. of items	Cronbach' α
Background		Gender	1	
		Experience of using chatbots	1	
Utility	Convenience of the tool	Importance and value of chatbots	6	.771
		Ease of using chatbots	4	
	Educational use	Advantages of using chatbots	6	.835
		Disadvantages of using chatbots	6	
Potential problems		Ethical aspects	5	.859
		Educational perspectives	5	
		Total	34	.893

Cronbach's α was calculated to analyze the reliability of the survey. As shown in Table 1, the reliability of the survey was 0.893.

2.2 Data collection and analysis

Before commencing the survey, students were provided with detailed explanations about the content of the questionnaire and the appropriate response mechanisms. This approach was essential to ensure that participants had a clear understanding and could provide informed responses. Explicit informed consent was obtained, and only those students who voluntarily agreed to participate utilized class time to complete the survey, emphasizing our commitment to ethical considerations.

The data was then processed and analyzed using the Statistical Package for the Social Sciences (SPSS) software, version 29.0. Our analysis encompassed frequency analysis, mean analysis, the independent sample t-test, and a reliability test. The frequency analysis was primarily employed to understand the demographic and background variables of the respondents, offering a comprehensive view of the participant makeup. The mean analysis

shed light on the students' detailed perceptions concerning the use of AI chatbots in their English studies. By categorizing the feedback into distinct factors, we were able to derive specific insights, represented by the mean values and standard deviations. The independent sample t-test was pivotal in ascertaining whether there was a significant perceptual difference toward chatbot usage based on students' prior experiences. This gave insight into the influence of chatbot familiarity on student perceptions. Lastly, the survey's reliability was conducted to ensure response consistency and credibility. We relied on the Cronbach's α coefficient for this, and as presented in Table 1, the reliability coefficient was 0.893, indicating a high level of trustworthiness in the survey instrument.

3 Results and Discussion

3.1 Convenience of the tool

3.1.1 Importance and value of chatbots

To examine the perceived utility of chatbots, students' perceptions of the importance and value of chatbots were assessed through six questions. As presented in Table 2, perceptions of chatbot importance and value scored an average of 4.05 on a 5-point scale, indicating that students have a high level of recognition of the importance and value of chatbots. Notably, among all six questions, the statement "Using chatbots saves time in problem-solving" received the highest score ($M = 4.33$), showcasing it as the most recognized aspect of chatbots' importance and value.

Table 2. Perception of Importance and Value of Chatbots

Question	M	SD
1. Using chatbots saves time in problem-solving.	4.33	.606
2. Chatbots can be used without time or spatial constraints.	4.26	.868
3. Chatbots offer a wide range of functionalities, such as providing information from various fields, offering problem-solving methods, sharing files, and links, etc.	4.26	.784
4. Chatbots provide comprehensive and easy-to-understand answers to diverse questions.	4.20	.664
5. The information obtained from chatbots is accurate and trustworthy.	3.73	.868
6. Conversing with chatbots feels less tense compared to human interactions, making it more comfortable.	3.50	1.106
Total	4.05	.483

Furthermore, students also highly recognized statements such as "Chatbots can be used without time and spatial constraints" ($M = 4.26$), "Chatbots offer a wide range of functionalities (providing information from

various fields, offering problem-solving methods, sharing files and links, etc.)” (M = 4.26), and “Chatbots provide comprehensive and easy-to-understand answers to diverse questions” (M = 4.20), all scoring above 4. These findings suggest that students value chatbots for the time savings they offer, their unrestricted usage across time and space, and their ability to provide diverse information and feedback.

Students were analyzed to see if there was a difference in recognizing the importance and value of chatbots based on their experience using them. As shown in Table 3, both groups with (M = 4.07) and without experience (M = 4.02) recognized the importance and value of chatbots at a similarly high level. Statistically, there was no significant difference. Therefore, it can be said that there is no difference in recognizing the importance and value of chatbots depending on their usage.

Table 3. Perception Differences on the Importance and Value of Chatbots

Question	Experience	N	M	SD	t	p
1	Yes	16	4.62	.500	3.246	.002*
	No	14	4.00	.554		
2	Yes	16	4.43	.629	1.159	.128
	No	14	4.07	1.071		
3	Yes	16	4.12	.885	-1.059	.149
	No	14	4.42	.646		
4	Yes	16	4.12	.806	-.654	.259
	No	14	4.28	.468		
5	Yes	16	3.81	.910	.527	.301
	No	14	3.64	.841		
6	Yes	16	3.31	1.138	.992	.165
	No	14	3.71	1.069		
Total	Yes	16	4.07	.425	.273	.787
	No	14	4.02	.557		

However, for the first question out of the total six, the group with experience (M = 4.62) recognized the time-saving aspect of using chatbots for problem-solving higher than the group without experience (M = 4.00), with the difference being statistically significant. This suggests that students with chatbot experience generally value the time-saving aspect of asking chatbots for information rather than searching for it themselves through books, dictionaries, or the internet.

The results are like the findings of previous research. In the study of Lopez and Qamber (2022), the student participants had a positive perception of chatbots, emphasizing the ability to obtain any desired information quickly, anytime, and anywhere. When utilizing AI-based chatbots, there are advantages such as providing learners with opportunities for two-way communication practice, fostering a ubiquitous learning environment, and offering quick responses to information learners seek, ultimately facilitating

learner-centered, personalized learning (Godwin-Jones, 2019; Kim et al., 2019; Shin et al., 2023). Such perceptions from students can be seen as a reflection of the advantages brought about by the use of chatbots. Additionally, utilizing chatbots can enhance learners' motivation to speak and effectively improve their English proficiency (Dizon, 2020; Kim, 2018a, 2018b).

Therefore, educators should maximize the advantage that chatbots offer in providing students with access to various information. Yet, one of the disadvantages of AI chatbots is that they can provide overwhelming amounts of information and may generate inaccurate data. Moreover, they often lacking in delivering information suitable for elementary, middle, and high school levels (Shin et al., 2023). Thus, it is crucial to cultivate students' abilities to discern which information is trustworthy and useful, and which information can be biased or cause misunderstandings.

3.1.2 Chatbots usability

To investigate the ease of use of chatbots, we assessed how students perceive the simplicity and user-friendliness of chatbots through four questions. As shown in Table 4, the perception of the ease of use of chatbots was rated at an average of 3.87 based on a 5-point scale, indicating that students relatively highly perceive the ease of using chatbots. Among the four questions, the item that stated, "Once a conversation with the chatbot starts, the process to obtain the desired information or response is straightforward and clear, with no difficulties" had the highest perception level ($M = 4.13$).

Table 4. Perception of Chatbot Usability

Question	M	SD
1. It is convenient that chatbots can be used directly in a web browser without installing a separate application.	4.10	.884
2. Chatbots are designed simply, without the need for complex menus or buttons, and the procedures (such as account creation, login, and search) are straightforward.	3.60	.855
3. The design of the chatbot is user-friendly and approachable.	3.66	.802
4. Once a conversation with the chatbot starts, the process to obtain the desired information or response is straightforward and clear, with no difficulties.	4.13	.507
Total	3.87	.544

Furthermore, students also highly agreed with the statement, "It is convenient that chatbots can be used directly in a web browser without installing a separate application" ($M = 4.10$). This suggests that students appreciate the convenience of accessing chatbots without the need for a separate app installation and find the process of using chatbots user-friendly.

The study analyzed whether there was a difference in the perception of chatbot usability based on students' experience with using chatbots. As shown in Table 5, the results indicated that both groups, those with experience ($M =$

3.89) and those without experience (M = 3.85), perceived the usability of chatbots at a relatively high level with nearly identical scores. Therefore, it can be concluded that the presence or absence of chatbot usage experience does not influence the perception of its usability.

Table 5. Perception Differences on Chatbot Usability

Question	Experience	N	M	SD	t	p
1	Yes	16	4.06	.928	-.244	.809
	No	14	4.14	.864		
2	Yes	16	3.56	.813	-.253	.802
	No	14	3.64	.928		
3	Yes	16	3.68	.793	.149	.882
	No	14	3.64	.841		
4	Yes	16	4.25	.447	1.366	.183
	No	14	4.00	.554		
Total	Yes	16	3.89	.407	.165	.870
	No	14	3.85	.684		

The analysis results are consistent with the findings of Lopez and Qamber (2022). Students in Lopez and Qamber's study perceived using chatbots as easy and convenient, noting that the process of obtaining answers was not complicated. The ability of AI chatbots to swiftly provide learners with relevant information or answers, drawing from a diverse range of sources without requiring the learners to search themselves, is perceived as a significant advantage (Chun et al., 2021; Shin et al., 2023). This convenience and efficiency are believed to shape learners' positive perception towards AI chatbots.

Therefore, to maximize these benefits, teachers should create an environment where students can easily access and utilize chatbots when learning English. By providing clear guidance on the use and functionalities of chatbots, teachers can ensure that students do not encounter unnecessary challenges.

3.2 Educational application

3.2.1 Advantages of utilizing chatbots in English learning

We examined students' perceptions of the benefits of using chatbots for English learning through six questions. As shown in Table 6, the perception of the benefits of utilizing chatbots in English learning, based on a 5-point scale, averaged above 3, with a score of 3.81. This suggests that students relatively highly recognize the advantages of using chatbots in English learning. Notably, out of all six questions, the item stating, "Even if I ask in Korean, I can easily obtain various information related to English" received the highest score (M = 4.36), indicating that students perceive this as the most significant benefit of using chatbots.

Table 6. Perception of Advantages of Utilizing Chatbots in English Learning

Question	M	SD
1. I can practice English conversations in real-time, improving my English proficiency.	2.96	.964
2. The English-related materials (vocabulary, grammar, conversations, etc.) provided by chatbots are useful when writing in English.	3.76	.858
3. It provides immediate feedback on the learning content.	3.63	.764
4. Chatbots offer customized information based on user preferences and requirements.	4.03	.668
5. Even if I ask in Korean, I can easily obtain various information related to English.	4.36	.668
6. Using chatbots, I can easily complete school or tutoring homework without errors, thus receiving educational assistance.	4.10	.803
Total	3.81	.530

Furthermore, students also highly recognized the statements "I can easily complete school or tutoring homework without errors using chatbots, thus receiving educational assistance" ($M = 4.10$) and "Chatbots provide customized information based on user preferences and requirements" ($M = 4.03$), both scoring above 4. Additional feedback included the opinions that "Even if I can't meet a teacher in person, I can still learn English," "Students who need supplementary lessons can study as much as they want through chatbots, reducing educational disparity," and "Even those who find interpersonal relationships challenging can participate in learning."

From this, we can infer that students recognize the benefits of using chatbots for English learning, such as being able to ask questions in Korean and receiving answers or easily obtaining the information they need for independent learning.

On the other hand, the statement "I can practice real-time English conversations, improving my English skills" scored below the average at 2.96. This indicates that students relatively undervalue one of the chatbot's primary functions, which is "conversation," in terms of enhancing their English proficiency.

Students were analyzed to see if there was a difference in the perception of the benefits of utilizing chatbots in English learning based on their experience of using the chatbot. As shown in Table 7, the results revealed that the group without usage experience ($M = 3.84$) recognized the benefits of using chatbots in English learning slightly higher than the group with usage experience ($M = 3.78$). However, statistically no significant difference was observed. Thus, it can be said that the recognition of the benefits of utilizing chatbots in English learning does not differ based on the experience of using the chatbot.

Table 7. Perception Differences Advantages of Utilizing Chatbots

Question	Experience	N	*M*	*SD*	*t*	*p*
1	Yes	16	2.75	1.00	-1.333	.193
	No	14	3.21	.892		
2	Yes	16	3.56	.963	-1.417	.168
	No	14	4.00	.679		
3	Yes	16	3.50	.816	-1.021	.316
	No	14	3.78	.699		
4	Yes	16	3.93	.573	-.835	.411
	No	14	4.14	.770		
5	Yes	16	4.56	.629	1.778	.086
	No	14	4.14	.662		
6	Yes	16	4.37	.718	2.123	.043*
	No	14	3.78	.801		
Total	Yes	16	3.78	.437	-.325	.748
	No	14	3.84	.635		

However, among all six questions, for the sixth question, the group with usage experience (M = 4.37) perceived the benefits of utilizing chatbots in English learning significantly higher than the group without experience (M = 3.78). In Choi's (2021) study, the presence or absence of chatbot usage experience was reported as a factor influencing chatbot user satisfaction. This corroborates our findings, suggesting that students who have experience using chatbots are notably benefiting in their school or tutoring homework, receiving significant educational assistance.

The analysis results align with the findings of several previous studies. Shin et al. (2023) reported that educational experts rated ChatGPT above 4 on a 5-point scale in terms of its ability to provide information across various fields and its language proficiency. Furthermore, open-ended responses revealed that students could benefit from engaging in conversations and posing questions to ChatGPT for problem-solving. From this, it can be discerned that both students and educational experts commonly view the chatbot's diverse information provision capabilities and language proficiency as advantages in utilizing chatbots for English learning. Moreover, various studies have reported that consistent use of AI chatbots not only has a positive impact on vocabulary, writing, reading, and other skills (Kim, 2018a, 2018b; Maeng et al., 2023), but also, by providing immediate feedback, can enhance learners' self-directed learning and autonomy (Holmes et al., 2019; Maeng et al., 2023; Shin, 2019).

3.2.2 Disadvantages of utilizing chatbots in English learning
We also examined how students perceive the disadvantages of using chatbots for English learning through six questions. As shown in Table 8, the perception of the disadvantages of utilizing chatbots in English learning, based on a 5-point scale, showed an average of 3.30, indicating that students are somewhat aware of the drawbacks of using chatbots for English learning. Out of the six

questions, the item stating, "There is inconvenience when the chatbot stops functioning due to technical issues during use, making it difficult to use the chatbot smoothly for that period." ($M = 3.70$) was perceived as the most significant disadvantage.

Table 8. Perception of Disadvantages of Utilizing Chatbots in English Learning

Question	M	SD
1. There are difficulties in using the chatbot due to inaccurate or potentially misleading information.	2.90	.922
2. While you can obtain casual, everyday information, it is challenging to acquire educational and specialized knowledge.	2.66	.994
3. Chatbots lack voice recognition capabilities, so they don't assist in improving speaking skills like pronunciation or intonation.	3.53	.628
4. Chatbots mainly offer predetermined responses or answers to general scenarios; they don't provide tailored feedback considering the learner's individual learning level, preferences, or objectives.	3.50	.900
5. There is an inconvenience when the chatbot stops functioning due to technical issues during use, making it difficult to use the chatbot smoothly for that period.	3.70	.794
6. Chatbots have limitations in human-like conversational abilities, making it challenging to provide suitable dialogue based on emotions or situations and to understand the user's intent behind their questions.	3.50	.937
Total	3.30	.592

On the other hand, the item "While you can obtain casual, everyday information, it is challenging to acquire educational and specialized knowledge." scored below the average of 3, registering a 2.66. This suggests that students believe they can acquire not just everyday information but also educational and expert knowledge through chatbots.

A study was conducted to analyze whether there is a difference in the perception of the disadvantages of using chatbots in English learning based on students' experience of using chatbots. As shown in Table 9, the group with no usage experience ($M = 3.46$) perceived the disadvantages of using chatbots in English learning relatively higher than the group with usage experience ($M = 3.15$). However, statistically no significant difference was observed. Therefore, it can be concluded that the perception of the disadvantages of using chatbots in English learning does not vary based on chatbot usage experience.

However, among the six questions, for the first question, the group without usage experience ($M = 3.35$) perceived the disadvantages more strongly than the group with experience ($M = 2.50$), with the difference being statistically significant. This suggests that students without chatbot usage experience might believe that the chatbot, based on vast data, could inherently contain inaccurate or erroneous information. In contrast, students with usage experience seem to largely use the information provided by the chatbot as is, without feeling any inconvenience, indicating a more trusting attitude towards the chatbot's information.

Table 9. Perception Differences of Disadvantages of Utilizing Chatbots

Question	Experience	N	M	SD	t	p
1	Yes	16	2.50	.816	-2.827	.009*
	No	14	3.35	.841		
2	Yes	16	2.37	1.087	-1.781	.086
	No	14	3.00	.784		
3	Yes	16	3.56	.629	.267	.791
	No	14	3.50	.650		
4	Yes	16	3.43	.963	-.401	.692
	No	14	3.57	.851		
5	Yes	16	3.62	.885	-.546	.589
	No	14	3.78	.699		
6	Yes	16	3.43	.963	-.384	.704
	No	14	3.57	.937		
Total	Yes	16	3.15	.627	-1.447	.159
	No	14	3.46	.523		

The findings of this study present a somewhat different perception of students compared to the research conducted by Fryer and Carpenter (2006). Students in Fryer and Carpenter's study viewed chatbots positively, believing that they could improve their language learning skills by practicing all four domains of listening, writing, speaking, and reading through chatbots. They also appreciated that chatbots provided effective feedback on the information given by the students. Such results seem to vary depending on the type of chatbot used. However, during the survey, students often ask questions focused on reading and writing abilities, assuming that students were responding with the belief that AI chatbots, including ChatGPT, only supported text-based interactions. There are still studies reporting technological limitations related to voice-based AI chatbots. The scope of chatbot learning remains restricted to a basic level (elementary), and they fall short in offering diverse learner-centered tasks (Shin, 2019). Moreover, chatbots developed specifically for foreign language learning are extremely rare, implying that educators need to personally design instructional plans tailored to their educational objectives to utilize them for English learning (Chun et al., 2021).

Therefore, educators should assist in developing speaking skills, which can be challenging for chatbots to support. This can be achieved by introducing various learning strategies such as presentations, dialogues, and discussions to provide feedback. Furthermore, to offer personalized feedback that chatbots may not be able to provide, educators should consider 1:1 feedback related to more in-depth core subject issues. This individualized feedback approach will undoubtedly aid in the students' learning experience.

3.3 Potential issues

3.3.1 Ethical issues
We examined students' perceptions regarding potential ethical issues of using chatbots through five questions. As illustrated in Table 10, the recognition of potential ethical concerns, based on a 5-point scale, showed an average score of 3.55, which indicates that students recognize these ethical concerns. Notably, among the five questions, the statement "Chatbots provide information directly based on a large amount of data without citing, which can lead to issues of originality, creativity, and potential copyright infringements such as plagiarism" had the highest recognition with a mean score of 3.80.

Table 10. Perception of Potential Ethical Issues Arising from Chatbot Usage

Question	M	SD
1. By signing up, my personal information may be leaked.	3.53	.899
2. The chatbot may collect user's personal information without permission, and there is a possibility that this information could be disclosed to third parties.	3.60	.968
3. In the process of recording and analyzing conversations with users, the chatbot may use personal information without consent for other purposes, such as marketing.	3.40	.935
4. The chatbot might provide answers or information that discriminates against specific genders or races or exhibit biased views.	3.40	1.037
5. Without proper citation, chatbots can present vast amounts of data as is, potentially leading to issues of originality, creativity, and copyright infringements like plagiarism.	3.80	.761
Total	3.55	.758

Additionally, the statements "Chatbots may collect users' personal information without permission, and there is a possibility that this information could be disclosed to third parties" ($M = 3.60$) and "By registering as a member, my personal information could be leaked" ($M = 3.53$) also displayed relatively high recognition with scores above 3.5. Another opinion raised was the anticipation of malicious activities targeting chatbot information as chatbot usage becomes more prevalent. From this, it can be inferred that students recognize potential issues such as personal data breaches and concerns about plagiarism and copyright as potential ethical problems when using chatbots.

We analyzed whether there was a difference in recognizing potential ethical issues based on students' experience with chatbots. As indicated in Table 11, the results showed that the group without chatbot usage experience ($M = 3.78$) perceived potential ethical concerns relatively higher than the group with chatbot usage experience ($M = 3.35$). However, statistically there was no significant difference. Therefore, it can be said that there is no difference in recognizing potential ethical issues based on whether one has used a chatbot or not.

Table 11. Perception Differences Regarding Potential Ethical Issues

Question	Experience	N	M	SD	t	p
1	Yes	16	3.31	.793	-1.466	.154
	No	14	3.78	.974		
2	Yes	16	3.50	.966	-.598	.555
	No	14	3.71	.994		
3	Yes	16	3.12	.806	-2.032	.052
	No	14	3.78	.974		
4	Yes	16	3.06	.997	-2.002	.055
	No	14	3.78	.974		
5	Yes	16	3.75	.930	-.379	.708
	No	14	3.85	.534		
Total	Yes	16	3.35	.687	-1.612	.118
	No	14	3.78	.794		

Previous research has highlighted concerning regarding the moral discernment of AI chatbots, ChatGPT (Homes et al., 2019; Korn & Kelly, 2023; Shin, 2019). These concerns arise because chatbots, which operated based on a vast amount of data, can sometimes provide incorrect or biased information. Moreover, they often do not cite sources when offering information and have the potential to collect personal information data during user interactions. Alongside the convenience they provide, AI chatbots also present potential ethical challenges, such as issues of plagiarism and copyright, when users rely on the information they directly supply (Holmes et al., 2019; Kim & Byun, 2021).

Therefore, teachers should caution students to carefully review and think critically about the information provided by chatbots when they use them. Additionally, it is crucial to educate and guide students to clearly understand and comply with the chatbot's privacy policy to ensure they can adequately protect their personal information.

3.3.2 Educational issues

Students' perceptions of the potential educational issues when using chatbots were examined through five questions. As shown in Table 12, the awareness of potential educational problems scored an average of 3.58 on a 5-point scale, indicating that students are aware of potential educational issues. Specifically, among the five questions, the item stating, "When a chatbot provides answers to all questions, users might not explore the questions on their own" (M=3.93), was recognized as a significant educational concern.

Additionally, the statement, "If users become overly reliant on chatbots, they might copy homework or reports from school or private academies directly from the chatbot, missing out on opportunities for personal learning and growth" ($M = 3.90$), also showed a high level of awareness. This indicates that students are somewhat aware of the potential hindrances to developing critical thinking and academic opportunities due to a high dependency on

chatbots for English learning.

Table 12. Perception of Potential Educational Issues Arising from Chatbot Usage

Question	M	SD
1. Inaccurate or misleading information can be provided, leading users to acquire incorrect information.	3.43	.897
2. Inconsistent answers can be provided, causing confusion for users.	3.13	.899
3. If a chatbot provides answers to all questions, users might not explore the questions on their own.	3.93	.868
4. If users become overly reliant on chatbots, they might directly copy homework or reports from school or private academies from the chatbot, missing out on opportunities for personal learning and growth.	3.90	1.028
5. If chatbots interact without considering a user's linguistic capabilities or cultural background, users may receive language or content that is difficult to understand or not aligned with their cultural context, causing confusion.	3.50	.776
Total	3.58	.606

We analyzed whether there was a difference in students' perception of potential educational issues related to chatbot use based on their experience with chatbots. As shown in Table 13, the results indicated that the group with no chatbot usage experience ($M = 3.70$) had a relatively higher recognition of potential educational issues compared to the group with chatbot usage experience ($M = 3.47$). However, statistically, the difference was not significant. This indicates there is no difference in the recognition of potential educational issues regardless of the chatbot usage experience.

Table 13. Perception Differences Regarding Potential Educational Issues

Question	Experience	N	M	SD	t	p
1	Yes	16	3.18	1.046	-1.651	.110
	No	14	3.71	.611		
2	Yes	16	2.81	.750	-2.226	.034*
	No	14	3.50	.940		
3	Yes	16	3.87	.957	-.388	.701
	No	14	4.00	.784		
4	Yes	16	4.00	.966	.562	.578
	No	14	3.78	1.121		
5	Yes	16	3.50	.816	.000	1.000
	No	14	3.50	.759		
Total	Yes	16	3.47	.610	-1.014	.319
	No	14	3.70	.601		

However, among the five items, for the second item, the group without chatbot usage experience ($M = 3.50$) had a higher recognition of confusion arising from the inconsistency of chatbot responses compared to the group with

chatbot usage experience ($M = 2.81$). This difference was statistically significant. This suggests that students with chatbot usage experience generally perceive that they receive consistent answers from chatbots, indicating a lack of inconvenience in their usage.

The research findings presented here diverge somewhat from the primary objectives of AIED that Luckin et al. (2016) identified. These objectives include 'core concepts, thinking capabilities, metacognitive development, deep learning, learnability, and 21st-century key competencies (literacy, problem-solving, critical thinking, adaptability)'. Notably, as indicated in Table 12, students express concerns about over-reliance on chatbots, fearing this may hinder their problem-solving and critical thinking abilities and deprive them of opportunities for self-learning and growth.

Thus, when students use chatbots in English learning, educators should offer activities that encourage students' problem-solving and critical thinking abilities. This approach ensures that students have opportunities to solve problems and critically evaluate information. Furthermore, to reduce dependency on chatbots, educators need to emphasize the importance of self-directed learning and provide students with challenging tasks and opportunities to engage in autonomous study.

4 Conclusion

In the era of the Fourth Industrial Revolution, our society has seen the advancement of various technologies, including AI. In the education sector, the use of AI technology is increasing. AIED is being utilized in various ways, such as learner, teacher, and system dimensions, but in the current Korean education field, the focus is primarily on the learner dimension. Especially, AI chatbots are frequently used as assistant tools for learning foreign language. For effective use in classes, learners' perceptions of AI chatbots are crucial.

A study of how learners perceive AI chatbots yielded the following results: Firstly, students recognized the importance and value of chatbots at a high level. Especially, they had a very positive perception that using chatbots could save time in problem-solving ($M = 4.33$). They also recognized benefits like using chatbots without time-space constraints ($M = 4.26$), getting diverse information ($M = 4.26$), and receiving easy-to-understand feedback ($M = 4.20$). Additionally, students perceived the usability of chatbots positively, particularly noting the simplicity and clarity of obtaining information after initiating a chat ($M = 4.13$) and the convenience of not needing to install a separate app ($M = 4.10$). These findings were not influenced by their chatbot usage experience. In conclusion, students value chatbots for their convenience, speed, and simplicity.

Secondly, students perceived using chatbots in English learning as very beneficial. Notably, they appreciated being able to ask for English-related

information in Korean and receiving easy answers ($M = 4.36$). Other perceived advantages included using chatbots to easily and accurately complete school or academy assignments ($M = 4.10$) and receiving personalized information ($M = 4.03$). However, when divided by chatbot usage experience, students with experience ($M = 4.37$) valued the academic aid of chatbots more than those without experience ($M = 3.78$). This suggests that experienced students benefit significantly from using chatbots for assignments. However, they also acknowledged potential downsides, such as chatbots not operating due to technical issues ($M = 3.70$). On the contrary, those without usage experience were more concerned about receiving incorrect or erroneous information than those with experience ($M = 3.35$ vs. $M = 2.50$). To sum up, especially students with chatbot usage experience have a more positive perception compared to those without experience. Hence, teachers should support students in selectively obtaining and processing information from chatbots. Additionally, teachers should offer various speaking learning strategies and personalized feedback to overcome chatbot limitations.

Thirdly, students were relatively aware of potential ethical issues with using chatbots. They were particularly concerned about plagiarism and copyright issues ($M = 3.80$) and potential personal information breaches. They also perceived potential educational issues, fearing over-reliance on chatbots might hinder their exploratory learning ($M = 3.93$) or lead to copying assignments directly, missing out on learning opportunities ($M = 3.90$). However, regarding confusion due to inconsistent chatbot responses, non-users ($M = 3.50$) were more concerned than users ($M = 2.81$). In conclusion, regardless of their experience with chatbots, students are generally aware of the ethical issues. However, in educational aspects, those without experience are more skeptical than those with experience. Hence, teachers should guide students to critically evaluate chatbot information, educate about data privacy, and nurture problem-solving and critical thinking abilities.

Based on the results of this study, we would like to make several suggestions for chatbot utilization. First, it is recommended that teachers establish clear guidelines for chatbot use, equipping students with comprehensive instruction to navigate the pros and cons of chatbots. This enables more effective and secure usage. Second, teachers could let their students recognize the limits of chatbots. It is vital to emphasize to students that some of the diverse information provided by chatbots may be inaccurate or contain errors. By doing so, students will approach chatbots as a supplementary learning tool rather than the main source of information. Third, an emphasis on critical thinking is suggested; teachers can inspire students to independently verify information obtained from chatbots. Supportively, teachers might facilitate a culture of inquiry, assisting in the investigative learning process. Additionally, regular monitoring and individualized feedback on students' learning advancements could further enrich their educational experience.

Lastly, it is important to note that the findings of this study are based on a limited sample, indicating potential limitations in statistical inference. Nonetheless, this study, reflecting the perceptions of actual chatbot users, is expected to be significantly helpful in guiding the effective use of AI chatbots in English learning.

References

Choi, W. (2021). A survey of elementary school students' recognition on the dialogue-based chatbot- EBSe AI Pengtalk. *Journal of the Korea English Education Society, 20*(4), 211-231.

Chun, H., Lee, S., & Park, I. (2021). A systematic review of AI technology use in English education. *Multimedia-Assisted Language Learning, 24*(1), 87-103.

Dizon, G. (2020). Evaluating intelligent personal assistants for L2 listening and speaking development. *Language Learning & Technology, 24*(1), 16-26.

Fryer, L., & Carpenter, R. (2006). Emerging technologies: Bots as language learning tools. *Language Learning & Technology, 10*(3), 8-14.

Godwin-Jones, R. (2019). Future directions in informal language learning. In M. Dressman & R. W. Sadler (Eds.), *The handbook of informal language learning* (pp. 457-470). John Wiley & Sons.

Holmes, W., Bialik, M., & Fadel, C. (2019). *Artificial intelligence in education: Promises and implication for teaching & learning*. The Center for Curriculum Redesign.

Kim, H., Shin, D. K., Yang, H., & Lee J. H. (2019). A study of AI chatbot as an assistant tool for school English curriculum. *Journal of Learner-Centered Curriculum and Instruction, 19*(1), 89-110.

Kim, M., Yeom, J., Jung, H., & Lim, C. (2021). A review of research on artificial intelligence chatbot in education through the lens of activity theory. *The Journal of Educational Information and Media, 27*(2), 699-721.

Kim, N. Y. (2018a). Chatbots and Korean EFL students' English vocabulary learning. *Journal of Digital Convergence, 16*(2), 1-7.

Kim, N. Y. (2018b). A study on chatbots for developing Korean college students' English listening and reading skills. *Journal of Digital Convergence, 16*(8), 19-26.

Kim, S., & Lee, S. (2020). An analysis of a primary school English speaking lesson using an AI-powered conversational English learning application: A focus on student engagement as well as learners' and teachers' perceptions of the class. *Primary English Education, 26*(3), 177-202.

Kim, S-H. (2021, September 3). *4cha saneop hyelkmyeong wiwonhoe, 2021nyeondo ingongjineung iyong insik josabalpyo* [*The fourth industrial revolution committee announces' AI usage awareness survey for 2021*]. Brain Media. https://www.brainmedia.co.kr/Brain Science/21924

Kim, S-H., & Shin, J-A. (2022). Korean undergraduate students' perceptions toward English major courses on artificial intelligence and big data. *Secondary English Education, 15*(1), 71-88.

Kim, S-Y., Go, E-S., & Ha, O-S. (2023). Analysis on the perceptions on and need for AI-based adaptive learning: Focusing on a case in university. *CNU Journal of Educational Studies, 44*(1), 107-135.

Kim, T., & Byun, S. (2021). A study on the necessity and content composition of AI ethics education. *Journal of AI Humanities 8*, 71-104.

Kooli, C. (2023). Chatbots in education and research: A critical examination of ethical implications and solutions. *Sustainability, 15*(7), 1-15.

Korn, J., & Kelly, S. (2023, January 6). *New York city public schools ban access to AI tool that could help students cheat.* CNN.https://edition. cnn.com/2023/01/05/tech/chatgpt-nyc-school-ban/index.html

Lee, D-H. (2018). A study for the development of an English learning chatbot system based on artificial intelligence. *Secondary English Education, 11*(1), 45-68.

Lee, J. H., Kim, H., Shin, D. K., & Yang, H. (2019). A study on the conversational interaction with chatbot for foreign language learning. *Multimedia-Assisted Language Learning, 22*(1), 132-153.

Lopez, T., & Qamber, M. (2022). *The benefits and drawbacks of implementing chatbots in higher education: A case study for international students at Jönköping University*. [Unpublished master's thesis]. Jönköping University. http://www.diva-portal.org/smash/get/diva2:1673913/ FULLTEXT01.pdf

Luckin, R., Holmes, W., Griffiths, M., & Forcier, L. B. (2016). *Intelligence unleashed: An argument for AI in education*. Pearson. https://static. googleusercontent.com/media/edu.google.com/ko//pdfs/Intelligenc e-Unleashed-Publication.pdf

Maeng, U., Ko, H. K., & Son, B. E. (2023). Utilizing digital·AI in English education: Research trends through text network analysis and topic modeling. *Modern English Education, 24*, 156-170.

Ministry of Education (MoE). (2022). *2022 Revised national curriculum*. Ministry of Education.

Park, J. H., & Shin, N. M. (2017). Students' perceptions of artificial intelligence technology and artificial intelligence teacher. *The Journal of Korean Teacher Education, 34*(2), 169-192.

Park, S. M. (2021, January 12). *AI chatbot 'Iruda'ga deonjin, gyeolko gabyeopji anheun message* [*AI chatbot 'Iruda's profound message that's anything but light*]. Sisaweek. http://www.sisaweek.com/

    news/articleView.html?idxno=140849

Shin, D. K. (2019). Feasibility and constraints in applying an AI chatbot to English education. *Brain, Digital, & Learning, 9*(2), 29-40.

Shin, D. K., Jung, H., & Lee, Y. (2023). Exploring the potential of using ChatGPT as a content-based English learning and teaching tool. *Journal of the Korea English Education Society, 22*(1), 171-192.

Soopsci. (2023, January 25). *ChatpGPT saryero bon AI todtks jeojakmul hwalyonge daehan yunri insik selmun gyeolgwa bogoseo* [*Survey report on ethical awareness of utilizing AI generated content: Study of ChatGPT*]. https://www.soopsci.com/Survey/?bmode=view&idx= 13911052&back_url=&t=board&page=1

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