Exploring Students' Experiences and Attitudes Toward Text-Generating AI in Foreign Language Learning: A Study of Japanese University Students

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Abstract

Advancements in generative artificial intelligence (AI) have the potential to enhance language learning. As the educational use of generative AI is still in its nascency, understanding learners' experiences and perceptions is crucial. This preliminary study used a 5-point Likert scale to explore the experiences and attitudes of 77 Japanese university students in one social sciences class and one humanities class toward incorporating text-generating AI into English learning. We found that approximately 70% of the participants had prior experience with text-generating AI. Their necessity and interest scores in acquiring AI skills averaged 4 or higher in both classes, with social science students demonstrating significantly higher levels than humanities students, suggesting a greater need for AI in careers such as data analysis. Furthermore, their interest in using AI for English learning averaged a score of 4 for humanities students and 3.8 for social science students, with no significant difference between the groups. Approximately 50–60% of the students in both classes did not use AI for English learning. Economics students demonstrated significantly higher perceived necessity of and interest in AI skills compared to their interest in using text-generating AI for English learning, indicating a gap in how students from different faculties value AI skills. As their interest levels may increase with experience, guidance on the use of AI in English learning is crucial. These findings can help tailor educational strategies to the unique needs of different student groups while integrating AI tools into English language learning.

Keywords: Generative AI, Text-Generating AI, Student Experiences, Student Interest, Speaking Practice, Foreign Language Learning

Introduction

Advances in generative artificial intelligence (AI) carry the potential to radically transform both pedagogy and learning in the field of education. Text-generating AI tools such as ChatGPT are trained on a vast corpus of text data, enabling them to generate responses that mimic human interactions. Taking advantage of this feature, efforts are being made to apply AI to foreign language conversation practice.

In a recent study, Nakamura and Wasaki (2023) incorporated generative AI into speech learning in Japanese language education, with a focus on Japanese speech practices. To address the lack of opportunities for foreign language speaking practice, Nakazato, Nakamura, and Tobita (2023) developed a prototype system of a web application called LingoAI. This application, which uses ChatGPT and the VRM file format for 3D characters, enables voice conversations with 3D characters in English, Russian, and Japanese.

The educational use of generative AI is still in its early stages, and efforts and support measures for utilizing generative AI are beginning to be implemented. Japan's Ministry of Education, Culture, Sports, Science and Technology (MEXT) has come to support the incorporation of generative AI in teaching. This initiative includes delivering lectures on the nature and limitations of generative AI (Yoshida, 2023), holding online training sessions on its use (MEXT, 2023a), and creating instructional videos to train teachers to use it (MEXT, 2023b).

Regarding the potential challenges of AI inclusion, Fujimura (2023) conducted a comparison of the latest generative AI functionalities. He surveyed current teachers and graduate students in teacher training programs to examine their intention to use generative AI, its potential for educational application, its considerations, and the necessary educational content. Ajlouni, Wahba, and Almahaireh (2023) found highly positive attitudes toward using ChatGPT as a learning tool among students at the University of Jordan, with students recognizing its potential to facilitate the learning process.

However, concerns regarding the accuracy of the data generated by ChatGPT have also been reported. Based on a sample of EFL (English as a Foreign Language) learners in Saudi Arabia, Jamshed, Alam, Al Sultan, and Banu (2024) found that while learners held positive views of the efficacy of AI-powered instruction, they also reported several serious concerns. These concerns included privacy issues, the crude nature of the technology, the lack of digital literacy among teachers and students, practical arrangements involving complex procedures and numerous tasks, expert shortages, the addictive nature of technology, and its failure to deal with the specific needs and challenges of various student groups.

As mentioned, efforts to investigate learners' use of generative AI are ongoing; however, the situation is likely to vary across countries. Owing to the rapid advancement of generative AI technology, the number of users and usage patterns among learners are expected to change over time. Conducting continuous research is important to keep pace with the progress of generative AI and explore appropriate educational content and methods.

This preliminary study aimed to investigate learners' experiences of and attitudes toward text-generating AI, explore their current situation, and identify countermeasures for the issues revealed in the survey. Our research questions were as follows:

1. Have the students ever used text-generating AI?
2. Do the students think it is necessary to acquire skills to use text-generating AI, and are they interested in acquiring the skills to utilize text-generating AI? Are there differences in students' perceived necessity of and interest in AI depending on the faculty?
3. Are the students interested in using text-generating AI to learn English? Are there differences in students' interest depending on the faculty?
4. Are there differences between students' interest in using text-generating AI to learn English and their awareness of the necessity of text-generating AI skills or their interest in acquiring skills to utilize text-generating AI?

The following sections discuss the methods adopted to conduct the study and the study findings. Subsequently, the conclusions and recommendations for future studies are presented.

Methods

Participants

The participants comprised 77 first-year students from two classes—social sciences and humanities—at a university in Japan. Table 1 presents the number of students and their majors. The students were informed of the study's purpose and the confidentiality of their data, and informed consent was obtained accordingly.

Table 1: Number of Participants and Their Majors

Class	Grade	Faculty	Number of Students
A	First year	Economics	41
B	First year	Global Human Sciences	36

Data Collection and Analysis

The questionnaire (Table 2) was distributed to the participants to gather their subjective responses about their previous experience with text-generating AI (Q1), most frequently used text-generating AI software (Q2), awareness of the necessity of text-generating AI skills (Q3), and interest in acquiring skills to utilize text-generating AI (Q4). Additionally, they were asked about their interest in using text-generating AI for English language learning (Q5) and their past experiences of using text-generating AI for learning English (Q6).

The participants were asked to choose their responses to Q1 from the two options listed in Table 2. For Q2, the participants were asked to select the most frequently used text-generating AI software from the options listed in Table 2. To account for those who had never used text-generating AI, the option "Not used" was included. The participants' responses to Q3–Q5 were scored on a 5-point Likert scale (1="Strongly Disagree"; 2="Moderately Disagree"; 3="Neutral"; 4="Moderately Agree"; and 5="Strongly Agree"). For Q6, the participants were asked to select their experiences using text-generating AI to learn English, as shown in Table 2, from which they could select multiple responses. Similar to Q2, in Q6, the option "Not used" was included for those who had never used text-generating AI.

We used the Wilcoxon rank-sum test to investigate whether any statistical differences existed between the ratings of the two classes. Additionally, the Wilcoxon signed-rank test was used to examine any statistical differences in the ratings of Q3, Q4, and Q5 within each class.

Table 2: Questionnaire Items

Items on Students' Awareness of the Necessity of and Interest in Acquiring Text-Generating AI Skills and in Using Text-Generating AI for English Language Learning
Q1. Have you ever used a text-generating AI?
1. Yes, I have used it.　　　　2. No, I have not used it.
Q2. Which text-generating AI do you use the most? Please choose one. If you have never used a text-generating AI, please select "Not used."
1. Not used　2. ChatGPT　3. Copilot　4. Gemini (Google Bard)　5. Other (Please specify)
Q3. It is necessary to acquire the skills to use text-generating AI.
1. Strongly Disagree　2. Moderately Disagree　3. Neutral　4. Moderately Agree 5. Strongly Agree
Q4. I am interested in acquiring skills to utilize text-generating AI.
1. Strongly Disagree　2. Moderately Disagree　3. Neutral　4. Moderately Agree 5. Strongly Agree
Q5. I am interested in using text-generating AI for learning English.
1. Strongly Disagree　2. Moderately Disagree　3. Neutral　4. Moderately Agree 5. Strongly Agree
Q6. Please select the experiences you have had using text-generating AI for learning English (multiple answers allowed). If you have never used text-generating AI for learning English, please select "Not used."
1. Not used
2. English composition correction and writing practice
3. Text-based conversation practice
4. Voice-based conversation practice
5. Vocabulary learning
6. External exam preparation (TOEIC, TOEFL, etc.)
7. Other (Please specify)

Results and Discussion

We analyzed the results of the questionnaires to address each research question pertaining to the students' experiences of and attitudes toward text-generating AI. This section discusses the overall questionnaire results and observed data trends. The questionnaire response results and corresponding percentages of participant responses for each item are presented in Figures 1–4 and Tables 3 and 4.

We examined whether the participants had previously used text-generating AI via Q1, the responses to which are presented in Figure 1. According to the results, 71% of the participants in Class A (Economics) and 64% in Class B (Global Human Sciences) chose "Yes, I have used it (a text-generating AI)." As the percentages were relatively similar, these results suggested that the participants' responses were not influenced by whether they were in social sciences or humanities classes. In Japan, literacy education regarding generative AI has not yet been widely incorporated into the curriculum for elementary to high school.

Consequently, experiences with generative AI depend more on the personal engagement of individual students than on their areas of study.
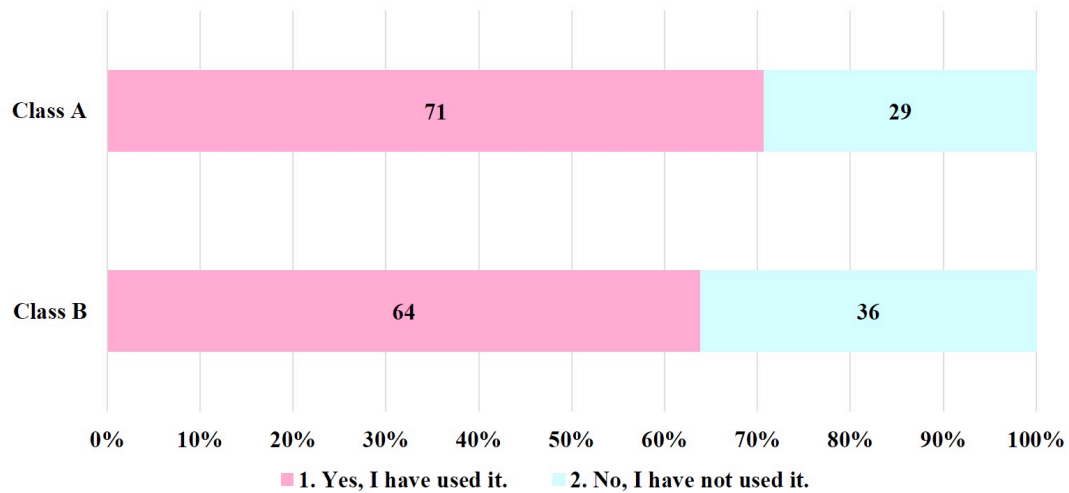

Figure 1: Corresponding Percentages of Participants' Responses to Q1

Table 3 presents the responses to Q2, which identified participants' preferred text-generating AI. Each number in this table represents the number of participants who selected each option, and the numbers in parentheses indicate the percentages within each class. We observed that slightly less than 70% of the participants in Class A and 50% of the participants in Class B used ChatGPT as their primary text-generating AI. In terms of other text-generating AIs, one student in Class A and four in Class B used Copilot, whereas only one student in Class B used Gemini. These results suggested that ChatGPT was the primary text-generating AI used by a substantial number of students.

Table 3: Results of Participants' Responses to Q2

Class	1. Not used	2. ChatGPT	3. Copilot	4. Gemini (Google Bard)	5. Other (Please specify)
Class A	12 (29.3%)	28 (68.3%)	1 (2.4%)	0 (0%)	0 (0%)
Class B	13 (36%)	18 (50%)	4 (11%)	1 (3%)	0 (0%)

Furthermore, we analyzed how participants perceived the need for text-generating AI skills in their future careers. Figure 2 presents the responses to Q3, which concerns the students' perceived need for text-generating AI skills. According to the results, 98% of the participants in Class A (Economics) strongly or moderately agreed that they would require text-generating AI skills in the future. In Class B (Global Human Sciences), 80.6% of the participants agreed with Q3. Regarding students' perceptions of the need for text-generating AI skills in their future careers, more than 80% of the participants in both classes provided positive responses.
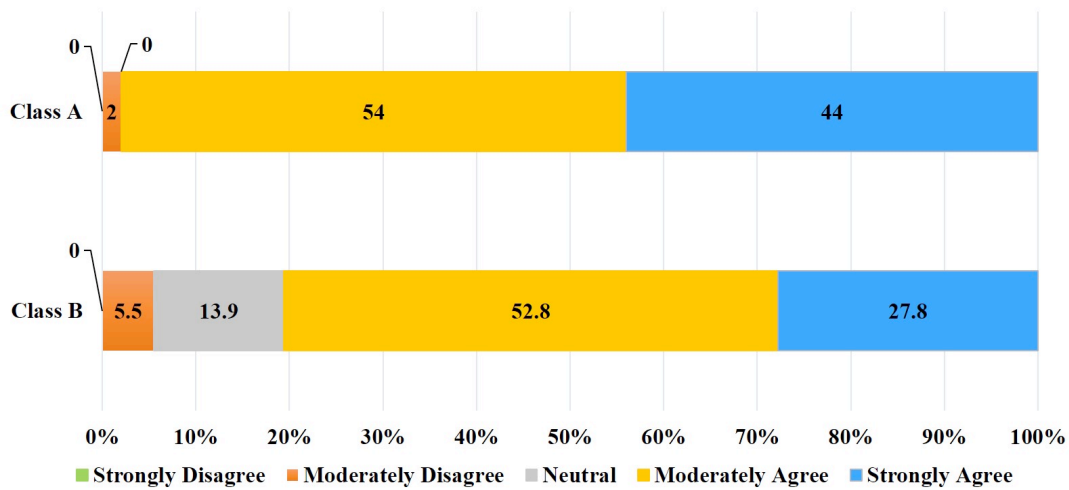
Figure 2: Percentages of Participants' Responses to Q3

Subsequently, we analyzed the participants' interest in acquiring skills to utilize text-generating AI. The percentages of the participants' responses to Q4, indicating their desire to gain text-generating AI skills, are shown in Figure 3.

According to the results, 98% of the participants in Class A (Economics) strongly or moderately agreed that they were interested in acquiring skills to utilize text-generating AI. In Class B (Global Human Sciences), 83.4% of the participants agreed with Q4. Similar to the results of Q3, more than 80% of the participants in both classes expressed a positive interest in acquiring the skills to utilize text-generating AI. However, students in Class A (Economics) appeared to have a slightly stronger interest.
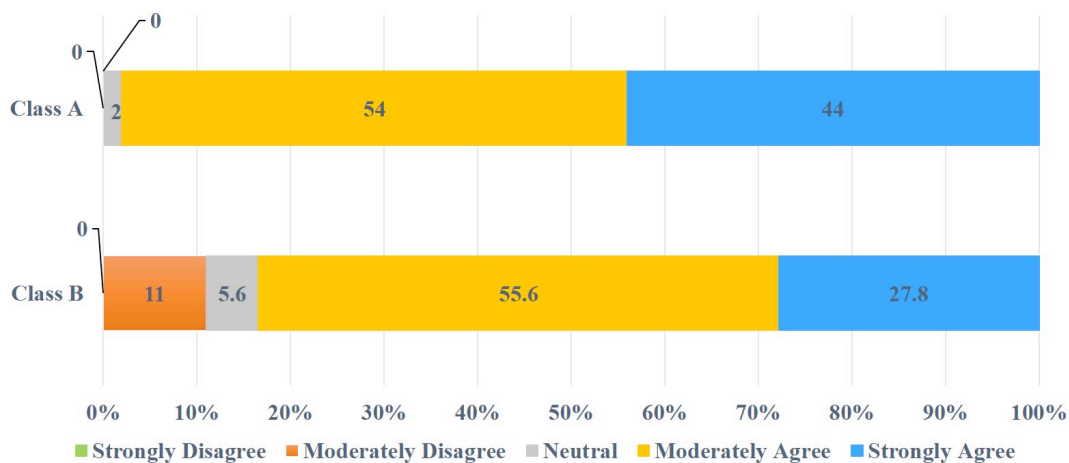

Figure 3: Percentages of Participants' Responses to Q4

Finally, we analyzed the participants' ratings of their interest in using text-generating AI to learn English. Figure 4 presents their responses to Q5, which addressed students' eagerness to use text-generating AI in English learning. According to the results, 71% of the participants in Class A (Economics) strongly or moderately agreed with Q5. In Class B (Global Human Sciences), 84% of the participants agreed with Q5. More than 70% of the participants in both classes expressed positive interest in using text-generating AI to learn English, with students in Class B (Global Human Sciences) demonstrating a slightly stronger interest.
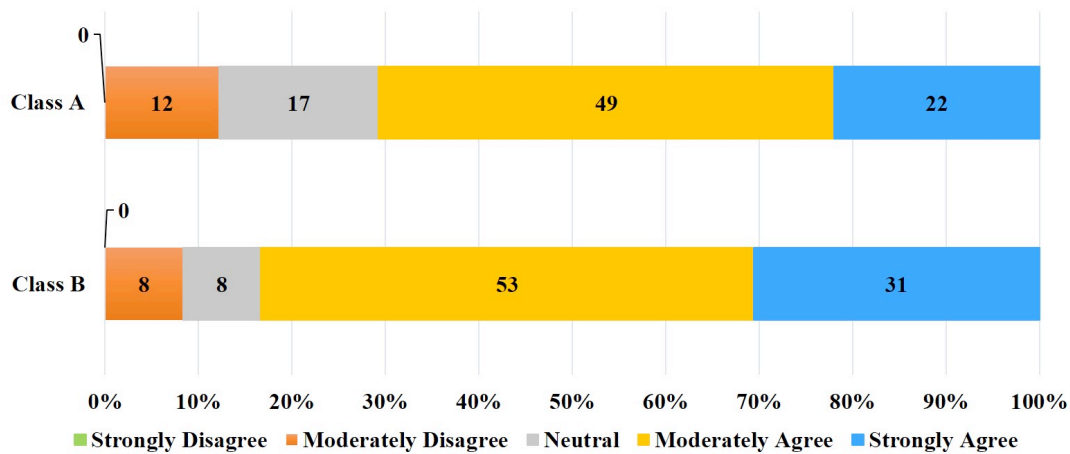
Figure 4: Percentages of Participants' Responses to Q5

Additionally, we analyzed the students' past experiences using text-generating AI to learn English based on their responses to Q6. Table 4 presents the number of participants who selected each option. Multiple responses were allowed for Q6. The percentages in parentheses indicate the proportion of each response relative to the total number of participants in each class. Options 1–7 in the table represent the following responses: (1) "Not used," (2) "English composition correction and writing practice," (3) "Text-based conversation practice," (4) "Voice-based conversation practice," (5) "Vocabulary learning," (6) "External exam preparation (TOEIC, TOEFL, etc.)," and (7) "Other (Please specify)."

According to the Q6 results, approximately 30% of the participants in both classes (34% in Class A and 28% in Class B) used text-generating AI for English composition correction and writing practice. Approximately 20% of the participants in both classes (15% in Class A and 22% in Class B) used it for vocabulary learning. Additionally, approximately 5% of the participants in both classes used text-generating AI for both text- and voice-based conversation practice. However, 50–60% of the students in both classes did not use it for learning English. These results suggested that the participants did not have sufficient experience in applying text-generating AI to English learning.

Table 4: Results of Participants' Responses to Q6

Class	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Option 7
Class A	24 (59%)	14 (34%)	1 (2%)	2 (5%)	6 (15%)	0 (0%)	0 (0%)
Class B	20 (56%)	10 (28%)	3 (8%)	2 (6%)	8 (22%)	1 (3%)	1 (3%)

Research Question 1

To address the first research question—"Have the students ever used text-generating AI?"—we examined whether the participants had previously used text-generating AI. According to the results presented in Figure 1, approximately 70% of the participants in both Class A and Class B had previously used text-generating AI. Therefore, their responses were not influenced by whether they were in social science or humanities classes. Because the educational use of generative AI is still in its early stages, students' experiences with generative AI are influenced more by their personal engagement than by their areas of study.

In Japan, literacy education regarding generative AI has not yet been widely incorporated into the curriculum from elementary to high school. Consequently, the students were expected to

have varying experiences with text-generating AI. These results highlight the need to design curricula that consider students' individual experiences with AI.

Research Question 2

The second research question was "Do the students think it is necessary to acquire skills to use text-generating AI, and are they interested in acquiring the skills to utilize text-generating AI? Are there differences in students' perceived necessity of and interest in AI depending on the faculty?" To address this, we analyzed participants' awareness of the necessity of text-generating AI skills, their interest in acquiring these skills, and how these needs and interests were perceived by the two faculties. The average scores of their responses to Q3 and Q4 were calculated using a 5-point Likert scale for each class to investigate the overall student perceptions. The average scores for both Q3 and Q4 were 4.4 for Class A and 4.0 for Class B. Given these high average scores, we concluded that many students in both classes perceived the necessity of and an interest in acquiring text-generating AI skills for their future careers.

Subsequently, the Wilcoxon rank-sum tests were conducted using the Q3 and Q4 data to determine whether statistically significant differences existed between the two classes at a significance level of 0.05. The results for Q3 revealed significant differences between Classes A and B (p=0.036). Similarly, the results for Q4 indicated significant differences between Classes A and B (p=0.043).

Therefore, the average score of the perceived necessity of and interest in acquiring text-generating AI skills was four or higher in both classes. While students in both fields recognized the importance of AI-related skills, social science students showed significantly higher levels of necessity and interest than their humanities counterparts. This indicated a strong recognition of the value of AI skills among students, particularly those in social sciences, who were more inclined to value these skills for their future careers.

Research Question 3

The third research question was "Are the students interested in using text-generating AI to learn English? Are there differences in students' interest depending on the faculty?" To address this, we analyzed whether the participants were interested in using text-generating AI for English language learning and whether any differences existed in their interests between the two faculties. Regarding their interest in the use of text-generating AI for learning English, the average scores for Q5 were 3.8 for Class A and 4.1 for Class B. This indicated that students' interest in text-generating AI for learning English was slightly higher among humanities students than social science students.

The Wilcoxon rank-sum test was conducted using Q5 data to determine whether statistically significant differences existed between the two classes at a significance level of 0.05. The results revealed no significant differences between Classes A and B (p=0.207).

Thus, students' interest in using text-generating AI to learn English was not influenced by whether they were in social science or humanities classes. According to the Q6 results in Table 4, 50–60% of the students in both classes had not yet used text-generating AI for English learning. Their level of interest may evolve as they gain more experience with the technology in the context of language learning.

Research Question 4

The fourth research question was "Are there differences between students' interest in using text-generating AI to learn English and their awareness of the necessity of text-generating AI skills or their interest in acquiring skills to utilize text-generating AI?" For this, we analyzed whether students' interest in using text-generating AI to learn English differed from their awareness of the necessity of text-generating AI skills or their interest in acquiring these skills within each faculty. Regarding students' interest in using text-generating AI for learning English, the average scores for Q5 were 3.8 for Class A and 4.1 for Class B. Regarding their awareness of the necessity of text-generating AI skills, the average scores for Q3 were 4.4 for Class A and 4.0 for Class B. The average scores for Q4, reflecting students' interest in acquiring skills to utilize text-generating AI, were also 4.4 for Class A and 4.0 for Class B.

Based on the class averages, the students in Global Human Sciences showed little difference between their interest in using text-generating AI to learn English and their awareness of the necessity of text-generating AI skills or their interest in acquiring these skills. However, Economics students had average scores of 4.4 for the necessity of AI skills and interest in acquiring these skills, whereas their interest in using text-generating AI for learning English was 3.8. Compared with the students in Global Human Sciences, Economics students appeared to have less interest in using AI for English language learning.

Subsequently, Wilcoxon signed-rank tests were conducted using the Q3, Q4, and Q5 data to determine whether statistically significant differences existed at the 0.05 level. The results revealed significant differences in Class A between Q3 and Q5 ($p=0.002$) and between Q4 and Q5 ($p=0.000$) but no significant differences in Class B between Q3 and Q5 ($p=1$) or between Q4 and Q5 ($p=0.854$).

Thus, students in Global Human Sciences recognized the importance of AI-related skills and were interested in using text-generating AI for learning English. However, Economics students demonstrated significantly higher levels of perceived necessity and interest in AI skills than their interest in using text-generating AI for English language learning. These findings underscored a potential gap in how students from different faculties perceive and value AI-related skills.

Specifically, the relatively consistent responses from Global Human Science students highlighted a recognition of the importance of AI across various contexts. Meanwhile, the significant differences in responses from Economics students suggest a need for targeted interventions to increase their interest in and engagement with AI tools for English language learning within this group. One possible approach could be to integrate activities involving the use of generative AI when working with real-world economic cases written in English. This approach could showcase the practical applications and benefits of AI in economic scenarios, thereby enhancing student motivation and participation.

Overall, these results underscore the importance of tailoring educational strategies to the unique needs and perceptions of different student groups to maximize the benefits of integrating AI tools into English language learning. By addressing these gaps, educators can better prepare students for a future in which AI competency is increasingly critical.

Findings

Although this study requires further improvement, its results revealed some critical findings regarding Japanese university students' experiences with and attitudes toward text-generating AI.

First, approximately 70% of the participants in both Economics and Global Human Science classes had previously used text-generating AI, whereas the remaining 30% had no prior experience. Therefore, students are likely to have varying experiences with text-generating AI, indicating the need to design curricula that consider students' individual experiences.

Second, while students in both fields recognized the importance of AI-related skills, social science students showed significantly higher levels of perceived necessity and interest than their humanities counterparts. Social science students may feel a greater need for text-generating AI in their future careers, particularly in areas such as data analysis. However, more detailed data and a larger survey sample are necessary to confirm this finding.

Third, the students' interest in using text-generating AI to learn English was not influenced by whether they were in social sciences or humanities classes. Additionally, 50–60% of the students in both classes had not yet used text-generating AI for English learning. Their level of interest may evolve as they gain more experience with the technology in the context of language learning. It is important to guide students on how to effectively use AI to improve their English learning.

Fourth, Economics students exhibited significantly higher levels of perceived necessity of and interest in AI skills compared with their interest in using text-generating AI for English language learning. These findings highlighted a potential gap in how students from different faculties perceive and value AI-related skills.

In summary, students recognized the importance of AI-related skills, regardless of their major fields of study. However, the ways in which text-generating AI might be used vary across faculties and individuals. Personal experiences with text-generating AI could also influence the perceived necessity of and interest in such technology. Providing guidance based on each individual's intended use could help increase their interest in text-generating AI. Offering guidelines that align with each student's goals and encourage skill enhancement may help stimulate interest in AI and motivate them to use it more actively. Furthermore, presenting specific examples and successful cases can help students better understand how to practically utilize AI.

Simultaneously, rather than simply using text-generating AI to make tasks easier, it is crucial to instill and maintain a positive and constructive attitude toward utilizing AI to enhance students' abilities. To engage students in using text-generating AI, the benefits and challenges associated with its use must be highlighted. Thus, by addressing both the practical applications and inherent challenges of text-generating AI, educators can prepare students for integration into their academic and professional lives.

Conclusions

We investigated Japanese university students' experiences with and attitudes toward text-generating AI. A questionnaire with a 5-point Likert scale was distributed to 77 Japanese

university students in two classes, yielding four primary findings. (1) Approximately 70% of the participants in both classes had previously used text-generating AI, whereas 30% had no prior experience with it, indicating that experiences with text-generating AI vary across individuals. (2) While students in both fields recognized the importance of AI-related skills, social science students showed significantly higher levels of necessity and interest. They felt a greater need for text-generating AI in their future careers than their humanities counterparts. However, more detailed data and a larger survey sample are necessary to confirm this finding. (3) Regarding interest in using text-generating AI for English language learning, no significant difference was found between the groups. Additionally, 50–60% of the students in both classes had not yet used text-generating AI for English learning; however, their level of interest may evolve with more experience with the technology. It is important to guide students on how to effectively use AI to enhance their English learning. (4) Students in Economics demonstrated significantly higher levels of perceived necessity of and interest in AI skills compared with their interest in using AI for English language learning. This highlights a potential gap in how students from different faculties perceive and value AI-related skills.

Limitations and Recommendations

The current study has certain limitations. First, the small sample size of 77 students may limit the generalizability of the results. Therefore, the survey should be expanded to include a larger number of students with diverse backgrounds. As the number of students using text-generating AI is expected to increase, longitudinal data must be collected annually from first-year university students.

Second, a significant number of the students in this study did not use text-generating AI for English learning. They were expected to have varying levels of experience with text-generating AI. Therefore, they must be guided on how to effectively use AI to enhance their English learning. Additionally, more detailed data on students' specific uses and perceptions of text-generating AI across different disciplines could provide deeper insights into their attitudes and needs.

Despite these limitations, the study offers significant insights. As a continuation of this research, we aim to foster a more positive and constructive attitude toward AI among students by addressing both the practical applications and inherent challenges of text-generating AI. Tailoring educational strategies to the unique needs and perceptions of different student groups is crucial for maximizing the benefits of integrating AI tools into English language learning. By addressing these gaps, educators can better prepare students for a future in which AI competency is becoming increasingly critical.

Declaration of Generative AI and AI-Assisted Technologies in the Writing Process

I utilized generative AI and AI-assisted technologies, specifically ChatGPT-3.5 and Copilot, to help polish the sentences in my paper. However, I did not use any AI to generate information for background research, nor did I employ it during the drafting stage or in creating the outline for this paper.

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