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Research Article

An Analysis of Language Learning App Usage and Sentiment Among Japanese University Students

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Abstract

The rapid development of artificial intelligence (AI) and AI-driven technologies has fundamentally altered the ways in which learners acquire information. This study sought to survey the most used tools among current Japanese university students in their English-as-a-Foreign-Language (EFL) studies and explore their thoughts on features they look for in an app. Of the $N = 616$ students that were surveyed, $n = 584$ (94.8%) of them reportedly used Google Translate regularly, with $n = 334$ (54.2%) of them also reporting use of ChatGPT and $n = 258$ (41.9%) mentioning DeepL, amongst many others. Key features sought after were speed (152 votes), ease (96 votes), accuracy (91 votes), and free access (82 votes). Regarding the participants' general attitudes towards AI, $n = 558$ (90.6%) expressed positive attitudes towards the use of AI, compared with only $n = 49$ (8%) who reported having concerns or skepticism about utilizing AI for language learning.

人工知能 (AI) および AI 駆動型技術の急速な発展は、学習者が情報を取得する方法を根本的に変化させています。本研究は、日本の大学に在籍する学生が英語 (EFL: 外国語としての英語) の学習において最も頻繁に使用しているツールを調査し、アプリに求める機能や使用に対する意識を探ることを目的としました。調査対象者 $N = 616$ 人のうち、 $n = 584$ 人 (94.8%) が Google 翻訳を定期的に使用しており、 $n = 334$ 人 (54.2%) が ChatGPT、 $n = 258$ 人 (41.9%) が DeepL を使用していると回答しました (その他にも多数のアプリが挙げられました)。学生が重視する主な機能としては、「速さ」(152 票)、「使いやすさ」(96 票)、「正確さ」(91 票)、「無料アクセス」(82 票) が挙げられました。AI に対する全般的な態度に関しては、 $n = 558$ 人 (90.6%) が AI の利用に対して肯定的な姿勢を示し、言語学習における AI 活用に懸念や懐疑心を持つと回答したのは $n = 49$ 人 (8%) のみでした。

The growing dependence on digital tools in higher education has significantly reshaped how students engage in language learning, particularly in non-English speaking countries such as Japan. Language sources, defined here as digital resources and applications used to support language learning, including translation, reference and AI-assisted, have become indispensable for students with limited proficiency in second languages. Despite their widespread use, there remains a lack of empirical data identifying which specific sources are most popular, what motivates students to choose them and how these tools are perceived in terms of effectiveness and reliability. This is especially relevant for low-proficiency university students who depend heavily on such technologies to access and understand academic content. This research responds to this gap by surveying Japanese university students to systematically analyze their translation source preferences, the features they value and their broader sentiments towards AI tools in educational contexts.

In this study, the term language-learning apps is used as an umbrella category that includes both traditional digital tools and AI-driven applications powered by machine learning or large language models (LLMs). Many of the tools mentioned by students now incorporate AI technologies, even when their interfaces appear simple and familiar. This overlap between app-based language learning and AI-driven functionality motivates the present research.

Literature Review

Large Language Models

In the language learning field, the most used AI-driven apps are those powered by large language models (LLM), such as the early ChatGPT, which boasts over 180 million users worldwide (Duarte, 2024). While the inner workings of LLMs are not made public knowledge, such as detailed technical information about various models, the datasets used to pre-train them, or the exact processes of the reinforcement learning with human feedback (RLHF) of each model, what LLMs are inherently trying to do is to produce natural-sounding language:

...what ChatGPT is always fundamentally trying to do is to produce a ‘reasonable continuation’ of whatever text it’s got so far, whereby [sic] “reasonable” we mean ‘what one might expect someone to write after seeing what people have written on billions of webpages, etc. (Wolfram, 2023, p. 10)

As such, it is not surprising that LLMs have been widely employed by language learners. What is somewhat surprising is the breadth of the domains in which AI-driven apps can now be found within the educational landscape.

From Digital Dictionaries to AI-Driven Translation Tools

Early digital translation tools were largely rule-based or dictionary-driven, whereas recent advances in neural machine translation and large language models have transformed applications such as Google Translate and DeepL into systems capable of contextual inferences and probabilistic language modeling (Koehn, 2020; Vaswani et al., 2017). Consequently, tools commonly perceived as simple translators now rely on the same underlying technologies as generative AI, blurring distinctions between traditional language-learning applications and AI-driven platforms.

AI-driven Tools in the Classroom

AI has a somewhat unique ability to address key challenges that are commonly found across educational settings, such as a lack of contact hours and limited student-teacher interaction. Additionally, it can act as support for developing learner autonomy. As such, the practical applications of generative AI abound, reaching almost every aspect of the learning process, only limited by the imagination of users. Kundu and Bej (2025) highlighted that while technological infrastructure does account for some disparity in the uptake/employment of AI-powered tools, educators’ own skills and teacher/learner readiness are also significant impediments to more prevalent incorporation.

Macinska and Vinkler (2024) gave several examples of how teachers are using AI tools to support their pedagogical goals, highlighting their use as conversation partners and writing assistants outside of the classroom. Students are able to make mistakes without the fear of losing face in front of their peers (Tabuchi, et al., 2024) and are motivated from the provision of immediate feedback (Macfarlane & Spring, 2024). In addition, the adaptive nature of LLMs such as ChatGPT, which remember past interactions and can customize output to match the user, allows for catered feedback to each student’s individual level and learning goal (Yeh, 2024).

CALL/MALL and the Emergence of LLMs

Traditionally, computer-assisted language learning (CALL) and mobile-assisted language learning (MALL), highlighted learner autonomy, accessibility, learning beyond the classroom boundaries and immediacy of feedback (Beatty, 2013; Kukulska-Hulme & Shield, 2008; Levy, 1997). The emergence of LLM-driven tools does not replace these principles but rather extends them by enabling dialogic interactions, context sensitive language support and adaptive feedback (Chapelle, 2021; Godwin-Jones, 2023). Framing AI-driven applications as an evolutionary extension of CALL/MALL situates the present findings within an established pedagogical lineage while acknowledging recent moves favoring intelligent, data-driven language learning environments.

Ethical Considerations

Despite the growing proliferation of AI-driven tools in the classroom, several researchers have voiced their concerns over the ethical implications of this trend. First, it is still unclear how LLMs are trained, meaning that users are not aware of what kinds of biases might exist within the programs (e.g., algorithmic, cultural, linguistic, etc.) (Mohamed, 2024). Naturally, without knowing what biases exist, it is impossible for users to address or counteract them. Additionally, the “black box” nature of large language models (LLMs), in which training data, model architecture and bias mitigation processes remain opaque, underpins many ethical concerns discussed in the literature (Bender et al., 2021; Burrell, 2016). Due to users’ inability to easily identify embedded linguistic or ideological biases, risks such as overreliance and uncritical acceptance of AI-generated output are amplified. Therefore, technical opacity and ethical risks should be understood as interrelated rather than discrete dimensions.

Going beyond the physical limitations of current LLMs, ethical concerns are also being raised about their use. Neff et al.’s (2024) survey of 543 students and 16 teachers showed a difference in opinion on the ethicality of various fictional scenarios based on generation and/or perspective, with students judging AI usage on academic assignments more leniently than teachers. Throughout the literature, a common concern is that overreliance on the immense power of AI and the potential for breaches of privacy have not been satisfactorily addressed.

While computer-assisted language learning (CALL) and the closely related field of mobile-assisted language learning (MALL) are far from new, these domains have taken huge leaps forward in recent years due to the advent of artificial intelligence (AI) and tools based thereon. This new technology, combined with the gradual acceptance of handheld personal devices being used in the classroom, has fundamentally shifted the way in which students engage with technology while learning a second language (L2). Based on the literature and the exploratory nature of the study, the following research questions guide the investigation: What language-learning applications do Japanese university students report using most frequently? What features do students value most when selecting a language-learning app? How do students perceive the role of apps in language learning? What are students’ general attitudes toward AI?

Methodology

A quantitative research design was employed using a survey-based methodology. This approach was chosen to effectively capture broad patterns of usage and perception across a diverse student population, while also providing empirical grounding for future policy and pedagogical recommendations in technology-enhanced language education.

Participants

The current research was conducted at a private Japanese university located in a rural region of the country. The location of the university away from major urban centers and the low population of speakers of English as a first language (L1) in the area make it an ideal context for an English-as-a-Foreign-Language study. In fact, the university does not have an English major; all participants were learners of L2 English to satisfy a graduation requirement as opposed to being engaged in devoted EFL study. In total, $n = 616$ students were recruited to participate in the study through their weekly mandatory English classes. Although biographical data were not collected, the university's student body is predominantly male (approx. 90%) and Japanese (95%). It is therefore likely that our sample reflects a similar demographic composition, a factor that should be considered when interpreting the results.

Data Collection

Students were informed in their weekly English classes that professors at the university were conducting research on AI use in the classroom. As the survey was to be performed entirely online, students were shown a QR code which linked to the survey site and were informed that participation was entirely voluntary. Students who wished to participate were asked to complete the survey after class on their own time. An informed consent statement was presented on the very first page, in both Japanese and English. Students could only move on to the survey after reading and acknowledging the Informed Consent statement.

The survey was created on Google Forms. After the Informed Consent statement, students were asked to type in the top five apps that they used most frequently, specifically for the purposes of language learning (RQ1). The second question asked students to report the feature, or features, that they valued most in an app (RQ2). Question three (RQ3) asked students how they felt about the role of apps in language learning. Finally, question four (RQ4) asked students to talk about their general feelings towards AI (i.e., not specifically related to learning a foreign language). The survey intentionally did not distinguish between AI-based and non-AI based applications, as students may not reliably identify which tools incorporate AI. This design choice allows insights into perceived usage while also introducing an interpretive limitation addressed later.

Data Analysis

Data collected through the online survey was analyzed using both quantitative and qualitative techniques to address the study's four research questions. The survey responses ($N = 616$) included structured items and open-ended responses, allowing for descriptive statistical and thematic analysis.

Quantitative data was entered into IBM SPSS (v.23), where responses were first cleaned and standardized. Responses (e.g., app names, feature preferences and approval categories) were coded as categorical variables. Frequencies and percentages were calculated for each item to provide a broad overview of patterns in app usage and user attitudes.

The open-text responses were manually coded. Application names containing typographical variations were standardized using majority-rule normalization. Feature descriptors were semantically grouped. Qualitative coding followed an inductive approach, with initial codes generated independently by the second author and refined collaboratively with the first author to ensure consistency and transparency. These included app names (RQ1), user-valued features (RQ2) and general impressions of AI (RQ4). Repeated responses were grouped and normalized (e.g., merging "fast" and "quick" under "speed"). For the sentiment analysis regarding AI (RQ4), inductive coding was used to categorize responses into themes such as "usefulness," "concerns about overreliance," and "cautious optimism."

No inferential statistical tests were performed, as the study aimed to provide an exploratory, descriptive snapshot of app usage behaviors and attitudinal trends. The decision to rely on descriptive statistics was grounded in the study's primary objective: to map out existing user behaviors and preferences among low-level English learners in an EFL university setting. The combination of quantitative frequency analysis and qualitative thematic grouping allowed for a rich, multi-faceted understanding of student engagement with translation tools and AI-based applications in their language-learning process.

Results

Research Question 1

In order to determine which translation or language-learning applications were most frequently used, students were asked to freely list up to five apps they rely on specifically for language learning. The aim was to capture actual usage patterns from the learner's perspective, rather than relying on pre-selected options. Responses reflect

current preferences in the digital tools students turn to for support with vocabulary, grammar and comprehension in their second language learning. The summarized, descriptive statistics for question one (RQ1) are presented in Table 1.

Table 1

Responses to Question One: "What Are the Top 5 Apps You Use Most Frequently for Language Learning?"

Application	Number of Students	Application	Number of Students
Google Translate	584	Elsa Speak	5
ChatGPT	334	Quizlet	5
DeepL	258	Baido	3
LINE Translate	124	Eduling Speak	3
Duolingo	78	Speak Buddy	3
CoPilot	25	翻訳王	3
Mikan	23	RedKiwi	2
Weblio	18	今すぐ翻訳	2
Gemini	18	英単語HAMARU	2
Hello Talk	10	システム英単語	2
Papago	8	Siri	1
abceed	7	英辞郎	1
Mazii	6	スタディサプリ	1
ターゲットの友 (Tagetto no tomo)	6	Madu	1

Note. Up to five responses per participant were accepted, although not all participants utilized all five spaces.

As reported in Table 1, the most used language learning app was Google Translate, followed by ChatGPT, DeepL, and LINE Translate, all with over 100 responses each. A further six applications were reported by 10 students or more, with a further 19 unique applications mentioned overall.

Research Question 2

Participants were next asked to identify which features they considered most important when selecting a language learning app. This item aimed to uncover the underlying criteria that shape app adoption and preference. Understanding which specific features are prioritized offers insight into students' expectations and how well current tools align with those needs. A full breakdown of the most frequently mentioned features is reported in Table 2.

Table 2

Responses to Question Two: "What Features Do You Value Most in a Language Learning App?"

Features	Number of Students	Features	Number of Students
speed	152	audio output	8
easy to use	96	multifunction	6
accurate	91	verbal input	5
translation	88	performance	4
free	82	quality	4
camera function	38	English listening	1
depth of information	28	familiarity	1
convenient	25	feedback	1
game-like	9	no ads	1
coolness	8	number of languages	1

Note. N = 616

Table 2 reveals that the most sought-after features of a language learning app among the sample were speed, ease of use, being free, and having a translation function. These main features were accompanied by sixteen other features that were mentioned by less than 50 participants each.

Research Question 3

This item aimed to assess student sentiment toward the use of apps in the language-learning process. Rather than focusing on specific tools, this question addressed the broader questions of whether students perceive app usage as a legitimate and beneficial part of their learning. Participants' responses were coded into a tertiary system of for, against, or unsure, providing a general overview of students' attitudes toward the pedagogical role of digital applications in formal and informal study contexts. Responses are presented in Table 3 ($N = 616$).

Table 3

Responses to Question Three: "How Do you Feel About the Role of App in Language Learning?"

Response	Number of Students
For	558
Against	39
Unsure	19

Note. $N = 616$

Results in Table 3 show that $n = 558$ (90.6%) of students had positive sentiments towards using apps to assist in language learning, compared to $n = 39$ (6.3%) who were against it. A further $n = 19$ (3.1%) of participants were not sure whether they were for or against app usage for language learning.

Research Question 4

In an effort to understand students' broader perceptions of artificial intelligence, the final survey item asked participants to report their feelings towards AI in general, not strictly restricted to the language learning context. This question sought to explore emotional, ethical and attitudinal dimensions of AI acceptance, hesitancy or concern. By inviting unrestricted answers, this item captures the complexity and diversity of student thought regarding AI's societal and educational role. Results of inductively coded sentiment categories are presented in Table 4.

Table 4

Responses to Question Four: "What Are Your General Feelings Towards AI?"

Sentiment	Number of Students
It's useful	191
I feel scared but hopeful	142
It shouldn't be depended on	67
It's great if we use it well	55
It's great	49
It's a danger to humans	46
It needs improvement	35
Limits should be set	31

As presented above, the participants expressed a variety of positive and negative sentiments towards AI in general, with the most popular responses referring to AI being useful ($n = 191$, 31%), closely followed by participants expressing fear but hope ($n = 142$, 23.1%).

Discussion and Implications

Through the four RQs, this study aimed to explore the language-learning app usage patterns and sentiments of Japanese university students, with particular attention to the influence of AI-driven tools in the classroom. The findings revealed clear trends in app preferences, usage behaviors and student perceptions, contributing to the growing body of literature surrounding technology-mediated language learning. The results are discussed in relation to each RQ and the broader implications for language pedagogy, learner autonomy, and educational policy.

A key feature of the Writing Journal process was that students were not required to accept all of the feedback provideThe dominance of Google Translate as the most frequently used app, followed by ChatGPT and DeepL, suggests that students prioritize tools that are familiar, accessible, and require minimal effort. All three of these apps are simply blank text boxes into which students can type or paste texts to be translated. Google Translate also has a camera option, whereby students simply point their cameras at a foreign language text, and it is instantly translated. These preferences align with earlier observations in the literature that students are more likely to engage with digital tools that offer immediate and easy-to-understand language support (Macinska & Vinkler, 2024). While AI-powered tools such as ChatGPT offer more adaptive and context-aware feedback (Yeh, 2024), there can be a higher initial hurdle to their operation, such as setting up a suitable prompt or explaining the context to ChatGPT in order to achieve the most optimum output. As a result, the adoption of these tools seems to be somewhat slower than tools that have been in long-term use. It may be inferred that technological innovation alone does not guarantee widespread uptake; student habits, digital familiarity, and perceived reliability remain critical factors in tool selection.

The most reported app features that were desired (i.e., speed, ease of use, cost-free access, and basic translation ability; Table 2), suggest a functional, rather than pedagogical, motivation for app usage. This preference for functional efficiency may reflect a curriculum that prioritizes task completion over the language learning process itself. Future pedagogical frameworks could aim to shift this focus by designing tasks where deeper engagement with AI tools, such as analyzing corrected syntax or exploring nuanced vocabulary, is necessary for success. These findings resonate with those of Tabuchi et al. (2024), who noted that learners tend to choose tools that reduce cognitive load and support immediate comprehension. However, this functional orientation may come at the expense of deeper language learning processes, such as productive vocabulary development, error correction, syntactic awareness, pragmatic instruction, and so on. This is a salient finding for language instructors, for without guided pedagogical frameworks, learners may remain at surface-level understanding, relying on technology to ‘fill gaps’ rather than actively constructing knowledge. This is a strong argument for the continued necessity of human language teachers who proactively instruct, not merely passively translate language.

The finding that over 90% of students approved of app usage for language learning was not surprising, as it was consistent with previous studies (e.g., MacFarlane & Spring, 2024; Neff et al., 2024), suggesting positive attitudes toward digital language-learning tools, including those that incorporate AI functionality. However, the minority who expressed disapproval or uncertainty voiced legitimate concerns about overreliance and decreased learning autonomy. These concerns mirror those raised in the literature regarding ethical and developmental implications of AI in education (Mohamed, 2024; Neff et al., 2024). The responses overall revealed a general sentiment of cautious optimism toward AI. While students frequently described AI as ‘useful,’ they also expressed ambivalence about the implications of its growth to prominence. This duality reflects current discourse in AI and education, where users appreciate personalization and immediacy but remain wary of issues such as data privacy, ethical boundaries, and over-dependence (e.g., Kundu & Bej, 2025; Neff et al., 2024). Importantly, students’ capacity to articulate both the benefits and the limitation of AI suggests a degree of digital maturity and critical awareness. This reinforces the argument that AI literacy should be an integral part of contemporary language education (Mohamed, 2024).

The findings of this study, while of immediate relevance to language learners, point to several key implications for educators, curriculum designers, and policy makers in higher education. Due to the high visibility and familiarity of AI technology, rather than discouraging its use, educators could benefit more from focusing their efforts on providing explicit instruction on how, when, and why to use such tools critically and effectively. Integrating digital literacy components into language curricula can equip students with the skills to assess the reliability, accuracy, and appropriateness of the technologies they encounter. Moreover, institutional policies surrounding technology use in education should be informed by empirical evidence of student behavior and sentiment, such as the current study, especially with regard to issues such as academic integrity, data privacy, and equitable access. AI tools such as ChatGPT, while potentially transformative, are most pedagogically valuable when embedded within structured learning tasks that promote reflection and language production. When scaffolded effectively, such tools can enhance learner confidence, reduce performance anxiety, and support personalized feedback, both for low-proficiency learners who may be anxious or frustrated in a traditional classroom, and for advanced learners who are more sophisticated and can extract more nuanced information from the app (Tabuchi et al., 2024; Yeh, 2024).

Limitations and Future Directions

Despite the insights garnered from this study, several shortcomings should be acknowledged as they provide opportunities for future research. The sample size consisted exclusively of students from a single private university in rural Japan. While the sample size ($N = 616$) is robust, the findings might not be generalizable to students in urban contexts, or other regions/institutions with more diverse linguistic or technological exposure. Due to the university’s curriculum structure, participants were generally low-proficiency English learners completing English courses as graduation requirements rather than pursuing intensive language majors. Future studies should consider more variety in universities and proficiency levels for a more comprehensive view of language app usage in varied educational spaces.

Another shortcoming of the research is that the data collected relied on self-reported responses. Though this approach provides invaluable insights into perceived behaviors and sentiments, it may be subject to inherent subjectivities such as social desirability and memory inaccuracy. Triangulating survey data with usage logs and in-app

analytics could improve the accuracy of app usage measurement.

Another key limitation of this study is that participants may not fully understand which language-learning apps incorporate AI technologies. As a result, response regarding AI sentiment may reflect attitudes toward familiar tools rather than informed evaluations of AI systems themselves. This ambiguity should be considered when interpreting findings related to AI perception.

Undoubtedly, the item about AI sentiment offered useful insights, however, there could have been a deeper probe into how students define or conceptualize AI. That area was lacking in the research. Using interviews or focus groups could explore the nuances of AI perception more. For instance, it could be used to examine students' understanding of ethical issues such as algorithmic bias, data privacy and the limits of AI-generated feedback in educational spaces.

Finally, this study focused solely on student experiences and attitudes ignoring the reality that instructors' beliefs, policies and practices surrounding app and AI use play a crucial role in education. Further studies should investigate how language teachers, policy makers and administrators perceive the integration of AI and translation tools in educational contexts.

Conclusion

This study investigated language-learning sources usage and students' attitudes towards AI tools among 616 Japanese university students in an English as a Foreign Language (EFL) context. The findings revealed that 95% of students reported using Google Translate, asserting it as the first option for language support tool for Japanese university students. AI-powered applications such as ChatGPT (54.2%) and DeepL (41.9%) also emerged as popular alternatives, reflecting the growing student engagement with generative and context-aware technologies. The most valued features influencing app choice were speed ($n = 152$), ease of use ($n = 96$) and free access ($n = 91$), which highlighted a functional preference.

Student perception of these sources was overwhelmingly positive, with 90.6% approving the use of apps for language learning and a small minority (6.3%) rejecting their use outright. Notably, 63.5% of the students described AI as helpful or useful, while others expressed "cautious optimism" ($n = 64$) or raised concerns related to accuracy, overreliance or ethical issues. These findings underscore a dual reality: the resources are used by a large portion of respondents who are also aware of their limitations and potential risks.

The findings of the research affirm that translation and AI-based applications have become well-known tools of language-learning for Japanese university students. While these tools provide valuable scaffolding, the emphasis on immediate utility over deeper pedagogical engagement raises important questions about long term language acquisition. Structured support and digital literacy education may help students engage more critically and effectively with these technologies.

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Appendix

Research on Apps & AI Usage for Language Learning

Biographical Data

Participant data will be treated with FULL confidentiality. No identifying details (names, email addresses) will be published or otherwise be made public. 参加者のデータは完全な守秘義務をもって取り扱われます。個人を特定できる詳細情報(氏名、メールアドレス)が公表されることはありません。

Enter your email address here if you'd like to be informed of the results of this survey. このアンケートの結果をご希望の方は、ここにEメールアドレスを入力してください。

Are you currently a student? 現在は学生ですか？

1. Yes
2. No

What grade are you in? 今の学年は何ですか？

- o Elementary 小学校
- o Jr. High 中学校
- o University (undergrad) 大学(学部)
- o University (graduate) 大学(院)
- o Not in school 社会人

What foreign language are you learning now? 今はどんな外国語を学んでいますか？

What country do you reside in now? お住まいの国は？

Q1: What are the top 5 apps you use most frequently for LANGUAGE LEARNING? 外国語を学ぶために、最も使うアプリのトップ5は？ e.g., Google Translate, Line通訳, 辞書アプリ, DeepL, ChatGPT, CoPilot, Gemini, Duolingo, HelloTalk... etc.

Q2: What do you use these apps for? アプリは何の為(どんなふう)に使っていますか？

Personal Preferences

Q3: What features do you value most in an app? アプリのどの特長は魅力的だと感じますか? (e.g., free app, accurate, game-like, smartphone & pc version available, etc.)

Q4: How do you feel about the role of apps in school? 授業における、アプリの使い方についてどう思いますか? (例: 使った方がいい、使わない方がいい、その理由、他)

Q5: What are your GENERAL feelings about A.I.? 一般的に、A.I.についてどう思っていますか? (例: とても便利でますます発展して欲しい、怖いで人間はA.I.に頼らない方がいい、他)

Q6: How do you feel about using A.I. for STUDYING? 特に勉強に関して、A.I.の利用についてどう思いますか?