International Journal of Research Studies in Education
2026 Volume 15 Number 6, 125-136

The role and educational possibilities of AI translation in international collaborative learning

Kimizuka, Maro ✉
Nihon Fukushi University Affiliated High School, Japan (maro-k@n-fukushi.ac.jp)

Received: 31 January 2026 **Revised**: 20 February 2026 **Accepted**: 5 March 2026
Available Online: 9 March 2026 **DOI**: 10.5861/ijrse.2026.26813

ISSN: 2243-7703
Online ISSN: 2243-7711

OPEN ACCESS

Abstract

AI translation tools have gained attention in education as a means of overcoming language barriers in international collaborative learning. However, empirical evidence remains limited regarding how such tools influence learners' comprehension and participation in authentic educational contexts. This exploratory study examines how AI-based translation (UD Talk) influences learners' comprehension and participation in two multilingual international exchange settings: an online exchange between Japanese high school students and a Cambodian primary school, and an online joint class with a Philippine partner school. The study combined quantitative questionnaire data (Likert-type and categorical items) with qualitative open-ended responses. Valid questionnaire responses were obtained from 27 Japanese students and 8 Philippine participants. Results indicate that most participants perceived AI translation as supportive of content comprehension and communication. In the Cambodian exchange, students reported reduced anxiety and greater ease of participation. In the Philippine class, English subtitles combined with visual materials were perceived as facilitating comprehension despite minor technical delays. These findings suggest that AI translation may function as a supportive tool in multilingual learning environments. Although intercultural understanding was not directly measured, facilitating communication across linguistic boundaries may contribute to opportunities for intercultural engagement.

Keywords: AI translation, multilingual learning, online international exchange, learner participation, intercultural learning

The role and educational possibilities of AI translation in international collaborative learning

1. Introduction

Since the COVID-19 pandemic, the use of ICT in education has expanded rapidly across many countries, and network infrastructure has significantly improved even in developing regions. These developments have made it increasingly feasible to implement sustained and structured online international exchanges and collaborative learning beyond geographical constraints. In recent years, the integration of artificial intelligence (AI) technologies into educational practice has accelerated further. In particular, the use of AI translation tools in international collaborative learning has attracted growing attention, as it offers new possibilities to foster mutual understanding among learners from diverse cultural backgrounds (Noguchi, 2024). Therefore, this study contributes to existing research by empirically examining how AI-based translation supports learners' comprehension, communication, and confidence in real-world international collaborative learning contexts.

1.1 Background of the study

Research on the educational use of AI translation tools has increased internationally. Shirahata (2023) characterizes machine translation (MT) as a process in which a source text is translated into a target text without human intervention and notes that learners often rely on MT to check vocabulary and short expressions. Similarly, van Lieshout and Cardoso (2022) highlight the multifunctionality of Google Translate, arguing that it supports vocabulary learning, pronunciation practice, and comprehension through features such as text translation, speech input, and text-to-speech (TTS) functions. Meanwhile, Gally (2019) argues that machine translation, when used for practical purposes, undermines the primary rationale for universal English education in Japan: the need to acquire English fluency for international communication. He further observes that recent improvements in online machine translation (MT) systems enable users to accomplish many everyday tasks that previously required English proficiency, even when translation quality is imperfect. In addition, Ohashi (2023) reports that research on MT in language education has increased substantially since 2020, and indicates that learners generally perceive MT positively primarily using it to support vocabulary learning and writing tasks.

Beyond language-specific applications, broader reviews of AI in education emphasize growing interest in how intelligent systems support learning across diverse educational contexts (Zawacki-Richter et al., 2019). However, empirical evidence on the role of AI-based translation in multilingual international exchange settings remains limited. Most research on MT in language education has focused primarily on specific linguistic skills, such as L2 writing or vocabulary learning, while limited attention has been paid to how AI-based translation tools influence learners' comprehension, confidence, communication, and intercultural engagement in multilingual collaborative learning environments. To better understand the mechanisms underlying comprehension in such environments, it is useful to draw on learning theory. In this regard, multimedia learning theory suggests that comprehension is enhanced when learners integrate auditory, textual, and visual information across multiple processing channels (Mayer, 2001). This perspective is particularly relevant in technology-mediated multilingual classrooms where spoken input, subtitles, and visual materials coexist.

Similarly, research on online intercultural exchange and telecollaborative learning has expanded over the past two decades. A comprehensive review by O'Dowd (2016) indicates that this research has primarily focused on foreign language learning, task design, and the development of intercultural awareness. The review also notes that telecollaborative practice has historically been shaped by bilingual or foreign language learning models, while more recent work explores more diverse contexts and pedagogical approaches. For instance, Helm (2015) reports on telecollaborative projects that extend beyond traditional language-learning objectives.

Since 2021, our institution has collaborated with a primary school in Cambodia to implement an online inquiry-based international collaborative learning program in which Japanese high school students design and provide ICT-based learning materials for Cambodian children. However, because English functions as the lingua franca during exchanges, Japanese students who lack confidence in English sometimes ask questions that diverge from the intended objectives. In many international learning contexts, English as a lingua franca shapes patterns of participation and identity (Baker, 2015), influencing how individuals position themselves and are positioned in interaction. This challenge can therefore be understood within broader discussions of language use in international collaborative learning.

To address this issue, AI translation tools were introduced in 2025 to facilitate more appropriate questioning and interaction without excessive reliance on English proficiency. In addition, the introduction of AI translation suggested possibilities for applying these tools to other forms of international collaborative learning, including contexts in which Japanese serves as the language of instruction. From a broader sociocultural perspective, learning is mediated through cultural tools and symbolic systems that shape human cognition (Vygotsky, 1978). Rather than neutral instruments, this framework views technological artifacts as mediational means that transforming how individuals perceive, interpret, and act in social interaction. Therefore, AI-based translation can be conceptualized not merely as a technical support system but as a mediational tool that supports meaning-making and participation in multilingual collaborative learning environments. From this perspective, the present study empirically examines AI translation not as a replacement for language learning but as a mediating tool that supports learners' participation, comprehension, and meaning-making in multilingual collaborative learning environments.

1.2 Objectives of the study

Based on the background described above, this study aims to clarify how AI translation tools influence learners' experiences in international collaborative learning. Specifically, this study focuses on the following four aspects:

(i) To examine the effects of AI translation on learners' content comprehension;

(ii) To explore communication processes supported by AI translation;

(iii) To examine learners' confidence when interacting across languages; and

(iv) To consider implications of AI translation for intercultural engagement

To examine these issues, questionnaire surveys were conducted not only with Japanese high school students participating in exchange activities with Cambodia but also with Filipino secondary school students, college students, and teachers who took part in an online joint class as part of a pre-departure program study tour program implemented in collaboration with a sister school. By analyzing both quantitative items and open-ended responses, this study empirically investigates the educational effects and potential of AI translation tools in international collaborative learning in multicultural and multilingual contexts.

2. Materials and Methods

This study adopted an exploratory design combining quantitative questionnaire data (Likert-type and categorical items) with qualitative open-ended responses to provide a comprehensive understanding of participants' perceptions. It examined the educational effects of international collaborative learning incorporating an AI translation tool (UD Talk), focusing on online exchanges with a Cambodian primary school and a joint online class conducted with a sister school in the Philippines via Zoom. This section describes each activity, participants, use of the AI translation tool, data collection procedures, and ethical considerations.

2.1 Online Exchange with a Cambodian Primary School

2.1.1 Overview of the Exchange

The online exchange was conducted via Zoom in July 2025. The purpose of the exchange was to deepen Japanese high school students' understanding of the local educational context and key considerations for developing ICT-based learning materials for Cambodian pupils as part of their inquiry-based learning, as well as to promote team building for their subsequent instructional practice. On the day of the exchange, Japanese high school students and Cambodian primary school pupils connected online and engaged in brief self-introductions in simple English. Subsequently, the Japanese high school students conducted a question-and-answer session with local Cambodian teachers to obtain information necessary for future ICT material development, including pupils' school life, the local educational context, and classroom management practices.

2.1.2 Use of the AI Translation Tool

Although English was used as the common language in this exchange, previous practices showed that Japanese students tended to rely heavily on their English proficiency, which in some cases resulted in insufficient content comprehension. In addition, anxiety about spontaneous English production often led Japanese students to ask superficial questions that were not closely aligned with the learning objectives, such as "What time is it now in Cambodia?" or "What Japanese food do you like?"

From a second language acquisition perspective, such anxiety may function as an affective barrier that constrains communicative participation (Krashen, 1982). Therefore, the introduction of AI translation was intended not only to support comprehension but also to reduce learners' psychological burden during interaction, thereby encouraging more substantive engagement with the content.

To address these issues, the AI translation function of UD Talk was introduced specifically during the question-and-answer session with local teachers. The translated subtitles generated by UD Talk were displayed alongside the Zoom screen and projected at the front of the classroom.

The translation process is illustrated in Figure 1. In this system, speech produced by Cambodian teachers in English and by Japanese high school students in Japanese was processed through speech recognition and automatically translated into the counterpart language, with subtitles displayed in real time.

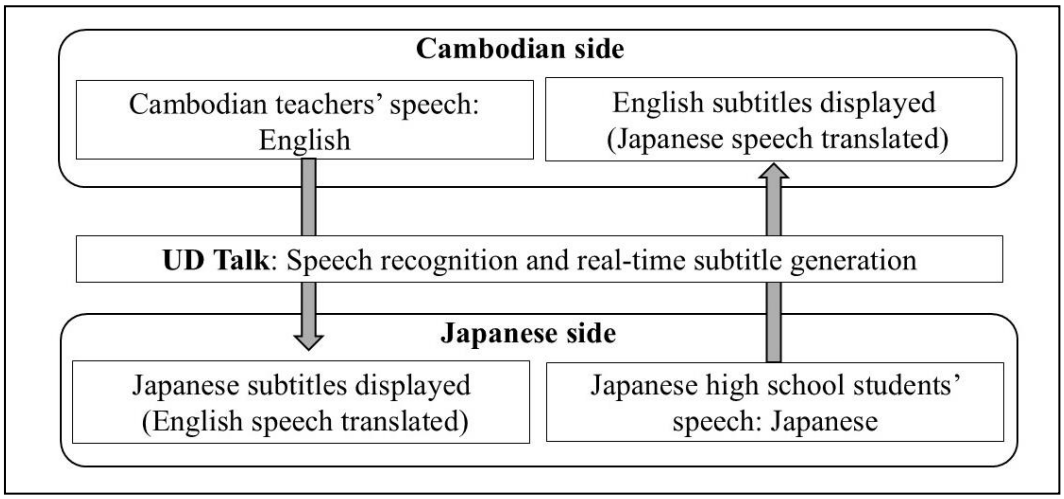

Figure 1. Bidirectional real-time subtitle generation mediated by UD Talk during the online exchange.

In other words, UD Talk functioned as a mediational tool in the multilingual exchange. This arrangement created an environment in which Japanese students could speak without excessive reliance on English

proficiency. By allowing learners to express their ideas in their native language while accessing real-time translation, the system aimed to facilitate deeper questions and exchanges of ideas that were more closely aligned with the learning objectives.

2.1.3 Participants

The participants were 32 Japanese high school students enrolled in the *Cambodia Practice* course, of whom 27 provided valid questionnaire responses (84%).

2.1.4 Data Collection

After the activity, a 10-item questionnaire was administered using Google Forms. The questionnaire consisted of the following items:

- Participant information (class, student number, and name): three items
- Evaluation of enjoyment of the exchange and perceived content comprehension: two five-point Likert-type items (two items in total)
- Comparison of perceived content comprehension with and without UD Talk: one three-category comparative item (Yes/Neutral/No) followed by an open-ended question requesting justification for the selected response (two items in total)
- Perceived ease of communication when using UD Talk: one three-category comparative item (Yes/Neutral/No) followed by an open-ended question requesting the reason for the selected response (two items in total)
- Overall open-ended comments on the exchange (impressions, learning outcomes, insights): one item

2.1.5 Ethical Considerations

This exchange was conducted with prior consent from local Cambodian teachers. The data analyzed in this study consisted solely of questionnaire responses from Japanese high school students; no video, audio, or subtitle data related to Cambodian pupils or teachers were used. Although questionnaire responses were collected with participants' names due to the nature of the class, all data were anonymized prior to analysis to ensure that individuals could not be identified.

2.2 Online Joint Class with the Philippines Sister School

2.2.1 Overview of the Joint Class

The second focus of this study was an online joint class conducted between Japanese and Philippine sister schools via Zoom in July 2025. This class was implemented as part of the preparatory program for a summer study tour to the Philippines and aimed to help participants learn about the historical background of World War II and postwar Japan–Philippines relations. The class was delivered in Japanese by a Japanese teacher, while Philippine secondary school students, college students, and teachers attended using English subtitles automatically generated by the AI translation tool UD Talk. The class was designed to enable Filipino participants to understand lesson content delivered in Japanese through English subtitles.

2.2.2 Participants

A total of nine Filipino participants, including secondary school students, college students, and teachers, took part in the joint class. Valid questionnaire responses were obtained from eight participants

(89%).

2.2.3 Use of the AI Translation Tool

During the class, lecture slides and English subtitles generated by UD Talk were displayed together via Zoom's screen-sharing function. As illustrated in Figure 2, lecture delivery was mediated by UD Talk, which generated real-time English subtitles based on the Japanese teacher's speech.

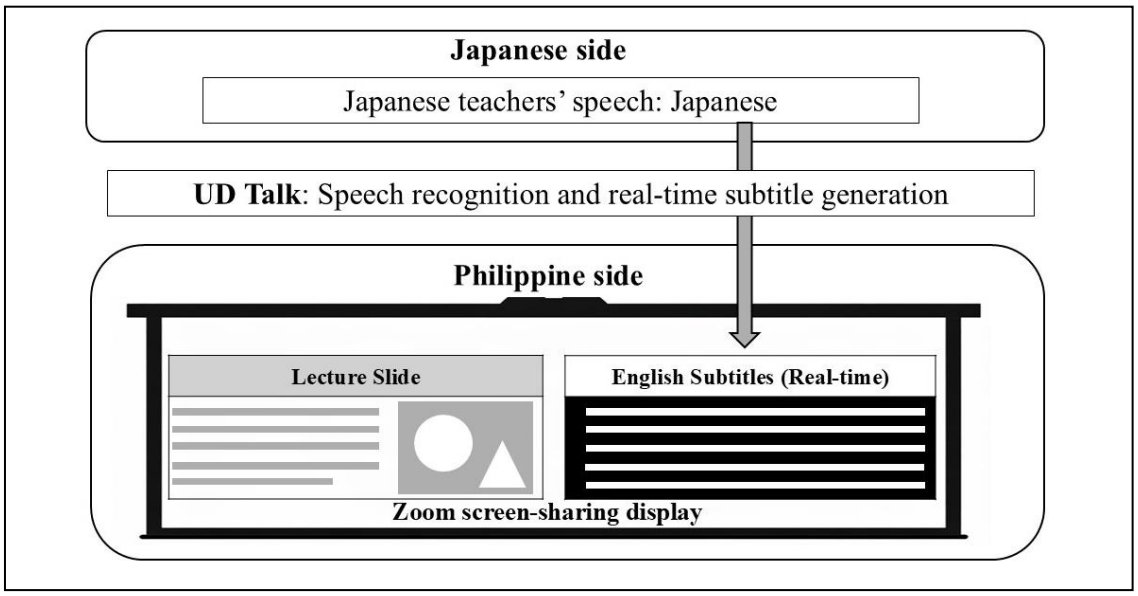

Figure 2. One-way UD Talk–mediated real-time subtitle display during the Philippine joint class

This arrangement enabled Filipino participants to access lecture content delivered in Japanese through a multimodal presentation, combining visual slides and translated subtitles. By reducing the need to rely solely on Japanese listening comprehension, the system aimed to facilitate content understanding while lowering the linguistic burden associated with participation.

2.2.4 Data Collection

After the class, an eight-item questionnaire was administered using Google Forms. The questionnaire consisted of the following items:

- Participant information (optional name and affiliation): two items
- Comprehension of lesson content: one four-point Likert-type item followed by an open-ended question requesting elaboration (two items in total)
- Perceived usefulness of UD Talk: one four-point Likert-type item
- Perceived translation accuracy of UD Talk: one four-point Likert-type item
- Open-ended responses regarding technical issues: one item
- Open-ended responses regarding the overall class experience: one item

2.2.5 Ethical Considerations

This class was conducted with prior approval from teachers at the Philippine partner institution. The data analyzed in this study consisted solely of questionnaire responses provided by Filipino participants after the class. Video, audio, and subtitle data recorded during the class were not used. Although the

questionnaire allowed participants to provide their names voluntarily, all responses were anonymized prior to analysis to ensure that individuals could not be identified. The collected data were used exclusively for research purposes and were managed appropriately.

3. Results

This section presents the findings from the two educational contexts examined in this study: the online exchange with a Cambodian primary school and the online joint class with a Philippine sister school.

3.1 Online Exchange with a Cambodian Primary School

This section presents the results of the questionnaire conducted with Japanese high school students.

Table 1

Comparison of perceived content comprehension with and without UD Talk

Question 1: Compared with the previous exchange without UD Talk, did you feel that you understood the content better when UD Talk was used in today's exchange?		
Yes	Neutral	No
96.3% (26)	3.7% (1)	0% (0)

Note. N = 27.

In response to Question 1, 96.3% of respondents answered "Yes." One respondent (3.7%) selected "Neutral," and none selected "No." Analysis of the open-ended responses suggested that many students perceived the translated subtitles generated by UD Talk as helpful for understanding their interlocutors' utterances. Several comments referred to the ability to visually confirm spoken content. For example, one student explained that "being able to check difficult-to-hear parts or fast speech in text helped deepen my understanding" (author's translation), while another noted that "I used to understand English only vaguely, but using UD Talk made it easier to understand than before" (author's translation). In addition, a student commented that "I felt that I could understand the other person's speech accurately and that the exchange proceeded more smoothly" (author's translation). These responses suggest that the availability of textual subtitles alongside audio input was associated with students' perceptions of improved content comprehension and smoother interaction.

Table 2

Comparison of perceived ease of communication with Cambodian participants when using UD Talk

Question 2: Did you feel that communication with the Cambodian participants was easier when UD Talk was used in today's exchange?		
Yes	Neutral	No
92.6%(25)	7.4%(2)	0%(0)

Note. N = 27.

In response to Question 2, 92.6% of respondents answered "Yes." Two respondents (7.4%) selected "Neutral," and none selected "No." Analysis of the open-ended responses suggested frequent references to a sense of psychological security associated with speaking in one's native language.

For instance, one student commented, "I didn't have to think about constructing English sentences, and I could speak without worrying about English vocabulary or grammar, which made me less hesitant to ask questions" (author's translation). Another student noted, "Even if my English was vague or I couldn't catch everything immediately, I could understand by looking at the text displayed next to the screen, and it became a conversation" (author's translation).

At the same time, some students pointed out challenges related to translation accuracy and speaking conditions. For example, one student stated, “If you don’t speak slowly and clearly, the words can be translated incorrectly, and surrounding voices can also be picked up, so I’m not sure how good it is” (author’s translation). These responses indicate that while students perceived communication to be easier when using UD Talk, they were also aware of contextual and technical factors influencing translation quality.

3.2 Online Joint Class with the Philippine Sister School

This section presents the results of the questionnaire conducted with secondary school students, college students, and teachers from the Philippine sister school.

Table 3

Perceptions of lesson comprehension, usefulness, and translation accuracy of UD Talk among Filipino participants

Question 1: How well did you understand the Japanese content covered in this lesson?			
I understood very well.	I understood to some extent.	I did not understand very well.	I did not understand at all.
37.5%(3)	62.5%(5)	0%(0)	0%(0)
Question 2: Did using UD Talk help you understand the lesson?			
Very helpful	Somewhat helpful	Not very helpful	Not helpful at all
50.0%(4)	50.0%(4)	0%(0)	0%(0)
Question 3: How accurate was the translation provided by UD Talk?			
Very accurate	Mostly accurate	Not very accurate	Not accurate at all
87.5%(7)	12.5%(1)	0%(0)	0%(0)

Note. N = 8.

For Question 1, five out of eight participants (62.5%) reported understanding the lesson content to some extent, while three (37.5%) indicated that they understood it very well. No participants selected responses indicating limited understanding. Analysis of the open-ended responses suggested that participants’ understanding was supported not only by the translated subtitles but also by visual materials. For example, one participant stated:

> *I liked the way the teacher used pictures of landmarks or buildings located in a local city as a springboard for the lesson on World War II, specifically referring to that city as the last stronghold of the Japanese Imperial Army in the Philippines. It makes the presentation of the lesson easy to understand.*

Another participant commented, “*The part where I can see the translation. I can understand the picture right away.*”

Some participants identified factors that affected their level of understanding. For instance, one participant noted that “I think the lesson was very nice and easy to understand. It's just hard because the translator app was a delay, but overall it was easy to understand.” Another participant similarly remarked:

> *The part that challenged me personally to understand the whole session was the short technical inconvenience on our end. In the first minutes, we weren't able to keep up with the translations due to our initial arrangement inside the room.*

All participants evaluated UD Talk positively in response to Question 2. Specifically, four participants (50.0%) reported that it was very helpful, while the remaining four (50.0%) indicated that it was somewhat

helpful.

For Question 3, seven participants (87.5%) rated the translation as very accurate, and one (12.5%) rated it as mostly accurate. The open-ended responses included several statements suggesting that the ability to review translated text supported understanding of the lesson content. As noted earlier, one participant indicated that being able to view translated text supported understanding of visual materials, suggesting that English subtitles may have facilitated interpretation in situations where comprehension based solely on Japanese audio would have been difficult. Some responses indicated that reviewing translated subtitles alongside slides and photographs made it easier to follow the progression of the lesson.

Overall, the qualitative responses indicate that while UD Talk was generally perceived as helpful, participants were also aware of technical constraints and operational conditions influencing its effectiveness.

4. Discussion

This section interprets the findings from the two educational contexts in relation to relevant theoretical perspectives and broader discussions of language use in international collaborative learning.

4.1 Online Exchange with a Cambodian Primary School

The results of the questionnaire survey indicate that a large majority of Japanese high school students perceived improvements in both content comprehension and ease of communication when UD Talk was used during the exchange.

With respect to content comprehension, Japanese students' comments suggested that the availability of translated subtitles alongside spoken input may have supported their understanding of interlocutors' utterances. The ability to visually confirm difficult or fast speech appeared to complement auditory processing. These findings are consistent with the view that the integration of textual and auditory information can contribute to learners' perceptions of improved comprehension within multilingual interaction.

Regarding ease of communication, Japanese students' responses indicated that being able to speak in their native language may have been associated with a sense of psychological security. This aligns with the design intention described in the Methods section, where AI translation was introduced to reduce learners' anxiety associated with spontaneous English production. From the perspective of second language acquisition theory, such anxiety may function as an affective barrier that constrains communicative participation (Krashen, 1982). The present findings suggest that allowing students to rely on real-time translation while expressing themselves in their native language may have contributed to lowering this affective barrier and supporting more substantive engagement aligned with the learning objectives.

At the same time, Japanese students' remarks concerning pronunciation clarity and background noise indicate that the effectiveness of AI-supported translation was influenced by contextual and technical conditions. Thus, while UD Talk was generally perceived as supportive, it did not eliminate communicative challenges entirely.

4.2 Online Joint Class with the Philippines Sister School

The results of the Philippines joint class suggest that participants were able to at least moderately comprehend the lesson content delivered in Japanese through the use of English subtitles generated by UD Talk.

Qualitative responses indicated that understanding was supported not only by translated subtitles, but also by the use of visual materials such as slides and photographs. In the present context, spoken Japanese input, real-time English subtitles, and visual slides functioned together as complementary resources. The coexistence of auditory, textual, and visual information may have supported comprehension within a multilingual instructional

environment.

At the same time, references to translation delays and technical inconveniences suggest that the effectiveness of AI-based translation depends partly on operational conditions. Thus, while participants generally evaluated UD Talk positively, it did not function as a universal solution.

4.3 English Dependence and the Expansion of Participation Opportunities in International Collaborative Learning

International collaborative learning frequently relies on English as a common language. While English can function as a practical lingua franca, this arrangement may unintentionally privilege learners with higher levels of English proficiency. In such contexts, participation can become closely associated with learners' confidence and competence in English, potentially limiting the depth and range of contributions from those who experience anxiety or difficulty in spontaneous English production.

The findings of the present study suggest that the use of bidirectional AI translation may have partially mitigated this reliance on English proficiency. In the Cambodian exchange, Japanese students reported that being able to speak in their native language reduced their psychological burden and made it easier to ask questions aligned with the learning objectives. Rather than focusing primarily on constructing grammatically accurate English sentences, students were able to concentrate on the substantive content of the exchange.

In the Philippines joint class, English subtitles appeared to support participants' comprehension of Japanese-language instruction. Open-ended responses suggested that the combination of translated text and visual materials facilitated understanding, particularly in situations where comprehension based solely on spoken Japanese would have been challenging. These findings are consistent with multimedia learning theory (Mayer, 2001), which proposes that learning may be enhanced when information is presented through multiple representational channels, such as auditory, textual, and visual modalities. In the present lesson, spoken Japanese input, English subtitles, and visual slides functioned together as complementary resources, potentially supporting learners' processing of instructional content in a multilingual setting.

At the same time, this interpretation should be considered exploratory. The Philippines sample size was limited (n = 8), and the findings are based on self-reported perceptions rather than direct cognitive measures. Although the results are consistent with theoretical perspectives on multimodal processing, the present study does not directly assess cognitive load or information-processing mechanisms. Therefore, the conclusions are limited to participants' reported experiences of comprehension and usefulness.

Within the scope of the present study, the findings suggest a modest but meaningful adjustment rather than a complete transformation of linguistic structures within international collaborative learning. While English continued to function as a shared medium, communicative engagement was not determined solely by English proficiency. By reducing excessive reliance on learners' productive English ability and by providing additional access points to meaning, AI translation may contribute to a more inclusive communicative environment within multilingual educational practice. This dynamic may partially reflect the ways in which English-mediated participation structures opportunities in international collaborative learning contexts.

5. Conclusion

This study examined the effects of AI-based translation on learners' comprehension and communication in online international exchanges and joint online classes using UD Talk. In the online exchange with a Cambodian primary school, the findings suggest that AI translation may have reduced learners' perceived psychological barriers to participation and supported more substantive engagement aligned with the learning objectives. In the joint online class with a Philippine sister school, translated subtitles combined with visual materials appeared to support participants' comprehension of Japanese-language instruction, as indicated by both quantitative and

qualitative data.

These results suggest that AI-based translation functioned as a supportive tool in different ways across contexts. In the Cambodian case, it was associated primarily with reduced anxiety and increased willingness to participate. In the Philippines case, it facilitated access to lesson content through multimodal presentation. At the same time, references to translation delays and technical constraints indicate that AI-based translation did not function as a universal solution.

Within the scope of the present study, participants engaged in learning and interaction while recognizing both the benefits and limitations of UD Talk, using it as a supplementary tool under specific technical and instructional conditions. These findings suggest that when introducing AI-based translation into online international learning or multilingual classroom contexts, it may be important to consider not only the technical features of the system, but also how learners and instructors make sense of and utilize such tools within particular instructional contexts.

Although intercultural understanding was not directly measured in this study, the facilitation of communication across linguistic boundaries may have created conditions that support opportunities for intercultural engagement. The present study contributes to the emerging body of research on AI in education by providing empirical evidence of how AI-based translation functions as a mediational tool supporting learners' perceived comprehension and participation within authentic multilingual international collaborative learning contexts. It extends existing discussions of AI translation beyond language-specific skill support to the level of participation structures in multilingual collaborative learning environments.

Nevertheless, several limitations should be acknowledged. First, the sample size was relatively small, particularly in the Philippines joint class, which may limit the generalizability of the findings. In addition, the data were based primarily on self-reported perceptions, rather than objective performance measures. The study did not include direct assessments of cognitive load, language proficiency development, or long-term learning outcomes. Therefore, the results should be interpreted as exploratory and context-specific. At the same time, the consistency observed across quantitative and qualitative responses provides preliminary support for the educational relevance of AI-based translation in multilingual collaborative settings.

Future research could expand the sample size, incorporate longitudinal research designs, and include objective measures of learning processes and outcomes. Comparative studies examining different instructional designs or translation tools would further contribute to understanding how AI-based translation can be effectively integrated into multilingual educational settings.

6. Acknowledgments

AI Use Disclosure

The author used ChatGPT (OpenAI, GPT-4, September 2025 version) to assist with English translation and language editing of the manuscript. The use of the AI tool was limited to linguistic support and did not involve the generation, analysis, or interpretation of research data. All AI-generated outputs were carefully reviewed and revised by the author to ensure linguistic accuracy and appropriateness. The author takes full responsibility for the accuracy and integrity of the manuscript. No confidential or personally identifiable data was entered into the AI tool.

7. References

Baker, W. (2015). *Culture and identity through English as a lingua franca: Rethinking concepts and goals in intercultural communication*. De Gruyter Mouton.

Gally, T. (2019). The implications of machine translation for English education in Japan. *Language Teacher Education: JACET SIG-ELE Journal*, 6(2), 1–14.

Helm, F. (2015). The practices and challenges of telecollaboration in higher education. *Language Learning & Technology*, 19(2), 197–217.

Krashen, S. D. (1982). *Principles and practice in second language acquisition*. Pergamon.

Mayer, R. E. (2001). *Multimedia learning*. Cambridge University Press.

Noguchi, T. (2024). The significance and prospects of online international collaborative learning (COIL) utilizing AI translation [In Japanese]. *Human Culture*, (39), 149–162.

O'Dowd, R. (2016). Emerging trends and new directions in telecollaborative learning. *CALICO Journal*, 33(3), 291–310.

Ohashi, L. (2023). Machine translation in language education: A systematic review of open access articles. The Annual Collection of Essays and Studies, Faculty of Letters, Gakushuin University, 70, 105–125.

Shirahata, H. (2023). Machine translation and foreign language education: Advantages, challenges, and perceptions. *The Gakushuin University English Literature Society Journal*, 29, 44–60.

van Lieshout, C., & Cardoso, W. (2022). Google Translate as a tool for self-directed language learning. *Language Learning & Technology*, 26(1), 1–19.

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes* (M. Cole, V. John-Steiner, S. Scribner, & E. Souberman, Eds.). Harvard University Press.

Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education: Where are the educators? *International Journal of Educational Technology in Higher Education*, 16, Article 39. https://doi.org/10.1186/s41239-019-0171-0