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Creating Parallel Translanguaging Side Spaces: Pursuing Meaning-Conveyance and Mutual Comprehension via Multiple Technology Use in an E-Tandem Program

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Abstract

The use of technology-mediated L2 learning programs has steadily increased. The need for longitudinal research into what transpires during such interactions, as well as the programs' effectiveness over time, has become truly significant. This longitudinal study examines the naturally occurring phenomenon of multi-layered technological spaces and sub-spaces in translanguaging practices within e-tandem language learning over a period of eight weeks. Specifically, it investigates a program involving one-on-one interactional sessions between a British university student learning Japanese in the U.K. and a Japanese university student learning English in Japan. Employing a multimodal conversation analysis (MCA) approach, the study focuses on how participants achieve meaning-making, meaning-conveyance, and mutual understanding by employing translanguaging and multimodality as well as leveraging digital platforms and technological resources. Microanalysis is performed of their Zoom conversations with available technologies, including Zoom's chat box, smartphones, and social media. In particular, they naturally and exhaustively generated these digital interactional spaces to convey meaning and ensure mutual comprehension whenever clarification, visual representation, or repair was needed. This qualitative study thus illuminates the multi-layered practices through which learners interact on a primary remote platform using conventional multimodality, while gradually opening and expanding parallel side spaces via multiple technological tools to manage their communication. The findings offer theoretical and practical implications that highlight the study's significance for L2 educators and researchers.

Keywords: Technology-mediated language learning, translanguaging, multimodality, conversation analysis, meaning-conveyance

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1. Introduction

Digital remote-communication platforms, such as Zoom, have transformed the ways in which teachers and students interact with each other and perform collaborative actions (Stefanile, 2020). Online instruction has increasingly been implemented as an alternative to in-person classes. Educators today have gained the requisite knowledge and skills to conduct their sessions from home, regardless of time zone, distance, and location, even from a foreign country. It has also made it possible for a foreign-language learner to communicate with L1 speakers of the language they are learning while both are at home in their own countries; these sessions have been shown to simultaneously allow language learners to explore both linguistic and cultural aspects of a native speaker's lived experience, while also permitting for authenticity and realistic socialization. Furthermore, Ningsih and Sari (2021) suggest that educators are continuing to explore more creative and innovative ways to fully take advantage of the digital functions of online education platforms. Research has found that these tools can effectively enhance both students' learning and their motivation, thus demonstrating the advantages these new interactional spaces can have for teachers and students alike (Ho & Tai, 2024).

Considering all of these positive aspects as advantages, this study implemented an e-tandem language-exchange program over Zoom involving students from two countries: the United Kingdom and Japan. The students engaged in one-on-one conversation practice in each other's L2, Japanese and English, during their 8-week sessions (see below for a more detailed program description). We were particularly interested in how the learners on both sides of Zoom developed their engagement in translanguaging actions (Tai, 2023) in such an authentic, but environmentally and physically limited, interactional space. Thus, this study focuses on the naturally-occurring, multi-layered creation of technological spaces and sub-spaces. This is a key aspect of translanguaging phenomena in e-tandem language learning. Employing the method of multimodal conversation analysis (MCA) (Mondada, 2018, 2019), we uncover the ways in which students simultaneously create side-interaction spaces, and how these spaces function to help achieve the goal of meaning-making and mutual comprehension. This study contributes to an understanding of both students' agency and in their communication skills over time.

2. Background

2.1 *Technology-mediated language learning*

Researchers have widely investigated the efficacy and challenges of technology-assisted language learning both inside and outside of the classroom (Chapelle, 2019; Kuure, 2011, Lee & Kim, 2025; Nurmala et al., 2023). According to Nurmala et al. (2023), the use of these new technologies can enhance language students' learning skills, as they effectively offer "personalized and tailored learning experiences" (p. 2188) that expand the platforms' potential. Members of the younger generations use these tools frequently, and that familiarity is a source of both comfort and motivation when they engage in technology-mediated language learning (Reinhardt, 2019). Satar et al. (2023) define online language programs as consisting of "development and use of multimodal, multicultural, and multilingual skills in a digitally-mediated environment" (p. 72). With access to a wide

variety of "authentic language materials, interactive activities, and multimedia resources" (Nurmala et al., 2023, p. 2189), online programs effectively promote students' engagement and language acquisition.

A number of scholars have previously examined the use of CMC (computer-mediated communication) as well, a setting similar to the one used in our current study, in L2 learning. For instance, conducting L2 Spanish learning on CMC, Blake (2000) not only found the benefits for interactive development, but also recognized possible accessibility outside the classroom, while Sauro (2009) explored the strategic use of modality during synchronous sessions, examining how L2 speakers tackled task-based interaction. The findings of Sauro's study show a series of shifts in interactive dominance between a learner using voice chat and another using text chat, which resolved the interactional asymmetry. Knight et al. (2020) similarly investigated six dyads of L2 students on a CMC platform as they worked on a role-play activity, observing their semiotic displays and use of available resources. Among its insights, the study reveals that the students themselves mediated their actions by navigating a variety of "visual/textual/navigational screen-based resources as a multiple ensemble" (p. 39).

Other researchers, however, have highlighted some of the difficulties that can arise when conducting technology-mediated language teaching. In a longitudinal study of four decades' worth of data on CALL (computer-assisted language learning), Hubbard (2023) detailed some of the conflicts between the technology's affordances, including interactivity and personalization; and some of its challenges, such as access inequities and teacher resistance. Hubbard also raises concerns about some of the common issues with today's AI-driven tools, like virtual reality (VR) and augmented reality (AR), and warns about the possibility of over-dependence on technology without pedagogical grounding. He reminds educators that, above all, having the basic educational knowledge and experience needed to create a collaborative environment, where past classroom- and teacher-based lessons and the incorporation of new technologies join together, is what will make future language learning more effective, equitable, and engaging.

2.2 *Meaning-conveyance through translanguaging and multimodality*

When L2 learners interact, one of the key resources that has been shown to emerge during cross-linguistic and socio-cultural interactions is *translanguaging*. As defined, translanguaging involves "using one language to reinforce the other in order to increase understanding and in order to augment the pupil's ability in both languages" (Williams, 2002, p. 20). Wei (2018) emphasizes that translanguaging differs from code-switching or code-mixing. It highlights the extent to which "plurilingual speakers communicate and make meaning using the linguistic repertoires they have at their disposal, regardless of whether these comprise the use of different named languages" (Canals, 2021, p. 649).

Williams (1996) was the first to introduce the concept of translanguaging. In his foundational work on Welsh-English bilingual classrooms, he documented students' tendency to alternate between languages to enhance learning and comprehension. Building on the work of Williams, Baker (2011) highlighted the meaning-making processes in which bilingual students engaged in educational settings. More recent studies, however, have shifted their focus: that translanguaging can involve far more than just languages.

According to Tai (2023), it can "transcend the boundaries" (p. 1) not only between languages, but also between different multimodalities; namely, elements such as prosodies, gestures, and semiotic displays. In other words, Tai (2023) argued, translanguaging can promote "other meaning-making resources" (p. 7), in addition to the use of multiple languages during interactions. Satar (2016) examined *meaning-making* and *meaning-conveyance* in learner interactions through physical movements and gestures on videoconferencing (DVC). Drawing on interactional sociolinguistics (Gumperz, 1982, 2003), Satar's study analyzed how the interactants employed semiotic resources - five codes of the body (Andersen, 1998; 2008): physical appearance, body movement, eye behavior, interpersonal spatial behavior, and tactile communication. Each of these embodied resources are similarly featured in MCA today. Satar (2016) further found that these elements helped the participants exhibit, interpret, and comprehend the meanings they conveyed to achieve mutual comprehension. The study further suggested to CALL (computer-assisted language learning) researchers that, among others, MCA "would be suitable methods in investigating meaning-making in online multimodal interactions of language learners" (Satar, 2016, p. 324). In applying translanguaging and multimodality into popular culture and media, Yang and Aimdilokwong (2026) showed that singers and listeners strategically value multilingual and regional dialect mixing in digital pop music to construct local identities and engage wider audiences.

The method of MCA particularly looks at a participant's embodied transitions, gestures, gazes, facial expressions, postures, etc. This is similar to the resources used in Satar (2016), along with linguistic elements and actions, such as the choice of words and expressions; how grammar is used; and the ways the person constructs some linguistic occurrences, such as repetition and repair, and prosodic resources including pauses, silence, voice tone/quality, pitch, and the speed of utterances. All of these multimodal elements are considered as constituting signals with certain meanings that a speaker is aiming to convey to the other interlocutor. Ho and Tai (2024) analyzed how the instructors employed translanguaging and multimodality in their YouTube videos to construct meanings with the use of linguistic, prosodic, and embodied resources, exploring in particular how the instructors conveyed those meanings to the student viewers. Extending this line of inquiry into student-generated content, Hua and Liu (2026) examined how emergent bilinguals utilize translanguaging across both the process (interactional space) and the product (performative space) of digital multimodal composing (DMC). Their study demonstrated that while learners predominantly rely on their native language (Mandarin) during the collaborative planning process, they strategically shift to the target language (English) supported by multimodal subtitles and visual cues in the final artifact to enhance meaning-making for their audience. In doing so, the researchers demonstrated how significant a part of translanguaging technological resources can be.

2.3 *Technology-mediated learning as creating translanguaging spaces*

Another intriguing finding that surfaced in the aforementioned study by Ho and Tai (2024) is their designation of two translanguaging "sub-spaces" created by the use of technological functions. One is an "interactional translanguaging space" that developed in the YouTube video instruction described above. In this space, the online teachers who made the two

videos showed their ability to draw on the multimodal elements to make meanings and convey them to the student viewers: constructing imaginary contexts with hypothetical and instructional frames; and using an array of multimodal resources including gestures, prosodies, styles of speaking, and registers. In doing so, they created interactional translanguaging spaces. The other sub-space is what the researchers referred to as a "performative translanguaging space." This manifested in a video's comments section, where students "performed" interactions by using language; for instance, by writing down answers, asking questions, or expressing opinions. In this space, Ho and Tai (2024) argue, "the traditional teacher-student expectations are negotiated, contested, and even reversed, bringing about a transformation of the viewers and commentators' identities" (p. 12). Their research is significant because they identify and conceptualize the construct of translanguaging sub-spaces, offering insights into how teachers and students' "full linguistic and multimodal repertories for enabling meaning-making and expressiveness in the digital platform" (p. 12) can be applied and promoted in language teaching and learning. For the current study, we draw on two significant studies as its theoretical frameworks. First, Satar's (2016) DVC study on meaning-making/conveyance by multimodality, which called for further research via MCA. Since the study was conducted, there have been quite a bit of technological advances; thus, we are interested in uncovering how the participants utilize all these side IT devices to achieve meaning-making today. Second, Ho and Tai (2024) also called for future researchers to use longitudinal case studies to examine how translanguaging sub-spaces are created, and how creativity and criticality develop there. Although their study was innovative, the current study's different context—two students' one-on-one intercultural L2 interactions over Zoom, and the other technological mediations involved—has not been examined in any prior research. Therefore, while we draw on Satar's framework of multimodal meaning-making and Ho and Tai's translanguaging sub-spaces on digital platforms, our longitudinal investigation is aimed at exploring the array of these two elements and what more can transpire. We seek to answer the following research questions in doing so.

1. In naturally-occurring intercultural interaction over Zoom between L2 learners, what multimodal and technological resources are utilized, and do they each achieve meaning-making as part of translanguaging?
2. What types of spaces and sub-spaces develop during the online interaction, and how do these spaces help the learners both reach mutual comprehension and improve their L2 interaction skills?

3. The Study

3.1 *Research context and participants*

This study implemented an e-tandem longitudinal language-exchange project that took place over eight weeks. We first recruited nine Japanese learners and nine English learners from universities in the U.K. and Japan, respectively. Based on the insights we gathered from the pre-project survey into their linguistic levels and personal interests, we matched students from the two countries, creating nine dyads. They were asked to engage in one-on-one L2 conversation practice via Zoom for one hour every week for eight weeks. Prior

to the first session, we conducted an introductory and orientation session with all of the participants. Although we provided them with the conversation topics each week, the students were free to expand on them as the talk's trajectory naturally led them to.

With respect to the students' backgrounds, all of the Japanese participants were L1 speakers of Japanese and second-year English majors at the same university; however, many of them described themselves as poor speakers of English, despite the fact that they had studied the language as a school subject for at least seven years. The British Japanese learners in the U.K. had just completed the first year of their university courses as Japanese majors.

All nine student pairs proceeded with their weekly sessions over the next eight week. From those nine, we selected one pair of students to conduct a more focused, qualitative analysis: Amy and Taku. Taku had previous experience studying English abroad, having spent a month in New Zealand. On the other hand, Amy had no prior experience being exposed to a Japanese-speaking environment. We paired these two students up because, on the pre-project survey we had conducted, both replied that they were interested in entertainment from each other's cultures, such as anime and pop music. We expected that they would each share their knowledge with the other, execute topic extensions, and improve their communication skills during their L2 interactions in both languages.

3.2 *Research Method and Analytical Procedure*

To observe the interactants' multimodality for meaning-making and meaning-conveyance, this study employs the method of MCA (Mondada, 2019). MCA is drawn upon conversation analysis (CA) whose main focus is on the interlocutors' authentic utterances including linguistic and prosodic elements. As a research method, CA's fundamental principle is to find what social actions take place through the sequential occurrences and emergent phenomena in the data, as well as to analyze their underlying machinery (Heritage, 1998; Sacks et al., 1974). With a strong emphasis on the embodied aspects added to CA, Waring (2008) argues that in MCA, "every subtle embodied resource would be relevant" (p. 580) in order to uncover interlocutors' orientations toward the interaction. Thus, in this study, the holistic microanalysis of turn-by-turn utterances entailing linguistic, prosodic, and embodied resources will be performed. Further adding the observation of the multiple technology use following a translanguaging framework (Ho & Tai, 2024), our focal analytical point is the interactional platforms, process, and resources. How the students use all of these resources to construct meanings, negotiate within their knowledge, and reach a mutual understanding will be closely investigated.

As for the analytical procedure, three Zoom sessions—the ones from the first and fourth week, and the last one from the eighth week—were videotaped and transcribed following a simplified version of the MCA transcript convention Mondada (2024) suggested. Thus, we analyzed a total of three hours of paired interactions between Amy and Taku. We picked five transcripts from which we documented emergent phenomena including translanguaging and multimodality; following that, we determined the types of translanguaging sub-spaces that the participants created alongside their main interaction over Zoom, as they employed various technologies.

For clarity in reading the multimodal CA extracts (simplified version) below, it should

be noted that the numbered lines show the participants' utterances or voice production. The + sign indicates gestures, gazes, and any physical movement. A * signifies simultaneous occurrence with another utterance or movement, also marked with *.

4. Analysis and Findings

4.1 *Session 1: Explicitness and vividness of gestures for meaning-making to further the partner's understanding*

We first observe Amy and Taku's English interaction from their initial session. Here, it seemed that their goal was to get to know each other, while also aiming to achieve meaning conveyance in any way that would allow them to "survive" the conversation. On the Zoom screen, both participants could see each other's faces next to one other.

Extract 1: Let's go to karaoke (first session)

1.	Amy:	Hello hello hello how are you?
2.	Taku:	I'm good.
3.	Amy:	Ok, *uhhhh (3.0) what should I say. * ummmm
		*+tilting head; gazing away *+looking towards the side
		+posture back to screen
4.		Do you like any English music?
5.	Taku:	Ehhh, I (.) like Ed Sheeran?
6.	Amy:	*Uhh yeahhh Ed Sheeran. yeah
→		+***Opening her eyes and mouth*** +nods a few times
7.	Taku:	Yeah his few songs are pretty good,
8.		so I like to *listen.
→		***+put both hands on his ears mimicking headphones**
9.	Amy:	I want to go to Japan, and uh go to karaoke.
10.	Taku:	yeah?
11.	Amy:	Yeah, it looks fun.
12.	Taku:	Yeah, in Japan karaoke is really famous.
13.	Amy:	Umm.
14.	Taku	I'm *all with the university students? **(image 1)**
→		***+spreading his arms, rounding them and gesture wrapping***
15.		&Let's go Karaoke YEAHHH **(image 2)**
→		**+&pumping his fist above his head, smiling***
16.	Amy:	Yeah, I want to, I want to.

After offering a greeting in line 1, Amy searches for a topic to discuss with Taku during the 3.0-second pause, before asking, "What should I say. Ummm" in line 3. She also physically expresses this searching action by looking away into the space beyond the screen (Bezemer, 2008). When she comes up with a topic, Amy corrects her posture, facing the

Zoom screen and asking, “Do you like any English music?” (line 4). Adjusting posture is a common sign that a person is ready to speak (Takahashi, 2024). Taku replies, “Ehhh, I like Ed Sheeran.” Amy shows a very positive response to this (“Uhh yeahhh Ed Sheeran, yeah”); along with her statement, she makes explicit gestures, opening her eyes and mouth, and nodding a few times in line 6. Because it is their first session and Taku may be eagerly attempting to make his English understood, he provides a rather vivid gesture that resembles an enactment. For instance, when he mentions that he likes to listen to Ed Sheeran’s songs, he gestures as if wearing headphones, placing both hands over his ears when simultaneously uttering the word “listen” (line 8). In another segment on the topic of karaoke, after Amy mentions that she wants to go do karaoke in Japan, Taku responds, “I’m all with the university students” while spreading his arms, rounding them, and wrapping them in front of him as can be seen in Image 1 (line 14)—as if he were holding (securing) a group of friends to him. Then, in a tone that reflects his excitement, he enacts the scene, uttering, “Let’s go karaoke, YEAHHH,” pumping his fist over the side of his head as can be seen in Image 2 (line 15). He seems to be visually re-creating a scene for Amy in which he and his college friends are having a lot of fun doing karaoke.

Image 1: Taku spreads his arms, saying, “I’m all with the university students”



Image 2: “Let’s go karaoke, YEAHHH” while pumping his fist up



This extract illustrates two phenomena that are common on an intercultural online platform: exchanging words related to each other’s cultural interests, and using explicit gestures to vividly visualize the scenes, as prior studies have also described (Bailenson, 2021; Hills et al., 2022; Zubek et al., 2022). Although Zoom allows the interlocutors to virtually speak face-to-face, they are still remotely interacting, and there is a physical distance between them. Thus, the participants’ highlighted gestures and rather exaggerated prosodic expressions can be seen as ways to make up for the distance and limited visual frame, while also appearing to play an important role in conveying meaning and aiding their partner’s comprehension. Their face-to-face interaction in this extract occurs only via Zoom, which is considered the main interaction space. No sub-spaces—places in which they could engage in side interaction to further their comprehension of what is being talked about on Zoom—have been created at this point. Rather, the students (and Taku in particular) employ a few explicit gestures and exaggerated enactments to convey meaning in the main interactional space.

The next extract illustrates the entire process of resolving a participant's incomprehension; first, through the use of a smartphone, and then of the Zoom chat box. It demonstrates how the use of digital resources on each side can help to eventually resolve a trouble source.

Extract 2: Trendy words and slang (Session 1)

1.		Taku:	Are there any (.) trendy words or srang (slang)?
2.			in London which is used among young people?
3.	→	Amy:	**umm (5.0) uhhh.**
	→		**+looking at screen blinking eyes**
4.	→		**any-what? sorry?**
5.		Taku:	Are there any [(.) srang (slang)
			+hand gesture
6.	→	Amy:	**[any what?**
7.		Taku:	Or (0.5) trendy words?
8.	→	Amy:	**+silence; blinking eyes**
9.		Taku:	like, how to say, ***nan-yaro*** (what is it), ummm
10.		Amy:	+laugh
11.		Taku:	***hayari no kotobatte nan-yaro*** (what do you call words in fashion)
	→		**+looking down on his smart phone**
12.			Just a ↑moment
	→		**+checking the word on the dictionary site on the phone**
13.		Amy:	oh-kay
			+laugh
14.		Taku:	ummm (15.0) ummm
			+still checking on the phone
			+face up, gazing away
15.			I want to know about (1.5) how to- trendy word?
16.		Amy:	**Eeh?**
			+coming closer to the screen; blinks
17.		Taku:	or (.) uhhh ***nanyaro***.
			+laugh
18.	→	Amy:	***type? type?= (image 3)**
	→		***+mimicking both hands typing**
19.		Taku:	=type. OK.
			+start typing the word in chat box
			(5.0)
20.		Amy:	+looks at chat box; looks up
21.	→		***OHHHH yeah TRENDY| WOR::::DS. (image 4)**
	→		***+opens her eyes and mouth wider with a big smile; leaning back**
22.		Taku:	[Yeah. does it make sense?=
23.		Amy:	=ohhh yeah like, like SLANG?=
24.		Taku:	=yeah I know, I want to [know about it.
25.		Amy:	[ohhhhhhhh]
			+smile

Taku asks if there are any "trendy words" among young people in London (lines 1-2). For some reason, Amy does not understand his question, perhaps because his pronunciation of "trendy word" sounds unclear. Amy asks, while blinking her eyes, "Any-what? Sorry?" (line 4). Taku additionally provides the word "slang" (line 5); however, this sounds like "srang," as it is common for L1 Japanese speakers to mispronounce the "L" sound as "R." He restarts the question by repeating the same words, but Amy still does not

comprehend it. Taku switches to Japanese as he mumbles to himself, "*nan-yaro*," and, "*hayari no kotobatte nan-yaro*" ("What is it? What do you call 'words in fashion'?") (lines 9 and 11). Then, he begins to search for a better word on a dictionary website on his smartphone, for which he spends 15 seconds (lines 12 and 14). It seems that he cannot find the word after all, then he repeats the same question again: "I want to know about how to-trendy words?" (line 15). Because Amy still does not understand what Taku is asking, she suggests that he type the word in Zoom's chat-box function, gesturing with her fingers for him to type as seen in Image 4 (line 18). After he types his question in the chat box and Amy has seen it, as Image 5 shows, she opens her eyes and mouth wide, enunciating, "OHHH, TRENDY WORDS. Like SLANG?" "Ohhhh" (lines 21 and 23).

Image 3: "Type, type," Amy tells him, while mimicking the action of typing

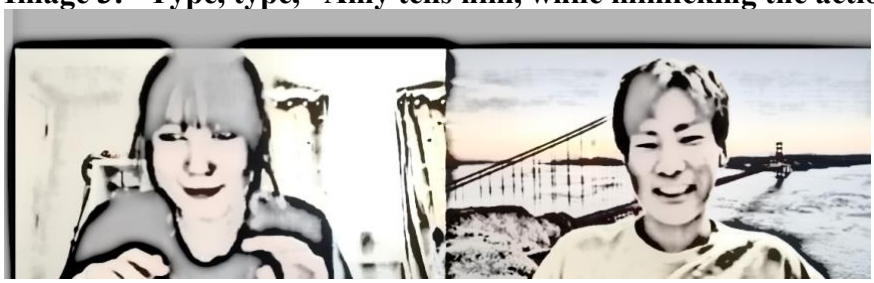
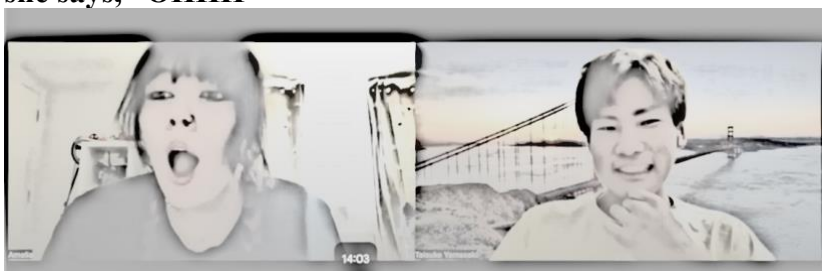


Image 4: Amy finally understands what Taku meant, opening her eyes and mouth as she says, "OHHH"



The focus of this extract is Amy's inability to understand Taku's question and how it is resolved. Taku' mispronunciation is considered a "trouble source" in CA (Schegloff et al., 1977), which is the cause of incomprehension or misunderstanding in interaction. This issue is later resolved, however, with the help of a technological tool: the chat box. Faced with the trouble source, Amy first initiates repair (i.e., requesting repair on Taku's part by clarifying what he means), uttering, "Any-what? Sorry?" Amy's incomprehension is blocking further communication, and Taku appears to be at a loss, not knowing how to solve the issue. This trouble is finally resolved by Amy's suggestion to "type the word" in the chat box in line 18. In this segment, the smartphone functions as an assisting tool and an information provider, although it was not successful; the chat box then functions as a sub-platform/device for self-repair when Taku spells out the word. It is clear that both can be significant sub-spaces for the e-tandem information provider, as well as trouble-source solvers to smooth out the interactional flow.

The next extract is the continuation of Extract 2, in which the two students step up their use of the chat box to teach words and expressions to each other.

Extract 3: I can teach you some! (Session 1)

1.		Amy:	sohhh umm I can teach you some, that people say $in London$.
2.		Taku:	+nodding
3.		Amy:	This is only in london
			+hand gesture
4.			and it's not really anywhere else but okay
5.			So if you wanna say hello to your friends?=
6.		Taku:	=yea
7.		Amy:	you can say this
	→		**+looks down; starts typing in chat box**
8.	→	Taku:	**+look down closer to chat box**
9.	→	Amy:	**wagwan** +laugh
10.	→	Taku:	**↓wagwan?**
11.	→	Amy:	**yeah**. it means like, it means like,
			+Getting closer to the screen smiling
12.	→		**Hey what's up.**
13.	→	Taku:	**Ummm hey what's up- wagwan.**
14.	→	Amy:	**yeah wagwan**.
15.		Taiku:	heeeehhh
(Omit 6 lines)			
16.		Taku:	do you know some trendy words in Japan? Japanese?
17.		Amy:	oh I think I do. Ohhh uhhh ummm
			+turn face to the side with a hand on the chin and mouth
			(3.0) *+looking back to the screen shaking head
18.			*no::I don't think I ↑do.
19.			I want to know.
20.		Taku:	+laugh
21.			Ok, I, I gonna teach you some. [Uhhhh
22.		Amy:	[OK]
23.		Taku:	ehhh slang,
	→		+gazing away; **start typing in chat box**

Having been asked about any trendy words or slang used in London in the previous extract, Amy offers to teach some words to Taku in line 1. She doesn't utter the word she is about to teach, instead spelling it out through the chat box first. When Taku sees it, Amy pronounces "wagwan" and laughs (line 9); Taku then repeats the word "wagwan" (line 10). This is followed by Amy replying, "Yeah" (line 11). Here, their pattern seems to resemble a teacher-student I-R-E triad sequence (Hellermann, 2003; Mehan, 1987): an initiation by the teacher ("wagwan," by Amy), a response by the student (Taku repeats "wagwan" after her), followed by an evaluation ("yeah" by Amy). In this case, however, the E part (evaluation) may mean "right" or "correct," or it could just be an acknowledgement. Right after this, Amy utters, "It means like, it means like" twice, then provides the definition ("Hey, what's up") as she leans closer to the computer screen in lines 11-12. Her first repetition could indicate that she is taking time to search for a good definition, and her subsequent move closer to the screen when uttering the definition may serve to show that she is now ready to clearly announce the meaning, resembling a posture change before speaking (Takahashi, 2024). Taku repeats the definition and the word as if learning the new expression: "Ummm, hey, what's up- wagwan" (line 13). Amy responds, "Yeah, wagwan." This appears to be another I-R-E sequence, consisting of Amy's initiation (providing the definition); Taku's response (repetition of the definition and the expression); and Amy's evaluation that that is correct, as she utters, "Yeah, wagwan." Thus, in this segment, the two students from the U.K. and Japan, Amy and Taku, assume the roles of teacher and

student (Brouwer, 2003) when she conveys the meaning. In the second half of the extract, Amy and Taku switch roles. After Taku asks Amy if she knows any Japanese slang and she says that she does not, he announces his intention to take on the role of teacher this time: "OK, I gonna teach you some" (line 21), followed by typing a Japanese slang and using an I-R-E sequence.

What is interesting in this extract is that the students utilize the chat box as if it were a blackboard in the classroom, or a shared writing pad, when they assume the reciprocal teacher-student roles. In Extract 2, they used the chat box to clarify the words and resolve the trouble source; while in Extract 3, it functions as a writing board to show the written slang terms and help the students teach them to each other.

To summarize the first session, the first key takeaway is the use of exaggerated gestures with some heightened prosody, as the participants attempt to convey their meanings and maintain their interaction over the main platform of Zoom while verbally communicating as they see each other's faces. Second, a smartphone emerges as a tool when the students are stuck on a comprehension problem. Taku attempts to search for a better word on a website using his smartphone, but the participants ultimately resolve the issue by using the chat-box function on Zoom. After this, they continue to exchange slang terms by spelling the words in the chat box while teaching the pronunciation over the screen. Thus, in this first session, students seem to have created new interactive spaces at a glance: however, only within their main interactional zone—because the chat box is a Zoom function, and Taku used a smartphone only to search for a word on his side. It rather appears that both participants are treating Zoom and its functions as the main interaction space; for its part, the smartphone appears to serve as a personal tool, rather than as an interactive one. Finally, the emergence of IRE demonstrates that even over the chat box, their meaning-making and meaning-conveyance are humanly authentic and organic as if they were speaking with each other in person.

4.2 *Session 4: The application of more interactive technology increases*

What we observed in the extracts from Session 1 seems to constitute a somewhat conventional, ordinary Zoom conversation. In Session 4, along with the main Zoom interaction, we will see how a trajectory shift—the simultaneous use of *technology on technology*—can help establish direct conveyance of meaning and mutual understanding, enabling the participants to continue and complete the conversation. This first extract from Session 4 may show a hint of such a directional shift. It starts when the participants begin to discuss their favorite music groups.

Extract 4: I like TWICE the K-pop group (Session 4)

1.		Taku:	What is your favorite song?
		Amy:	My favorite song. +leaning toward the screen
2.			*Let me look ummmm
	→		*+Turn to the side to grab her smart phone
3.			I'm like a massive fan of them but I like some of the songs,
4.			*Let me look for my playlist
	→		*+looking at the phone, moving her fingers and operating on it
5.			Uhhhh I li::ke (1.0) ummmm
			+moving her fingers on the phone looking at the playlist,
	→		+keeps looking at the phone and looking back to screen
6.			Oh do you know the Japanese one that goes,
7.	→		+starts singing "Duna, nanana, nanana, nanana"
			*+moving her face right to left and singing
8.	→		*"fuwa, fuwa, futaari nana-ni nah"
9.		Taku:	ummm +looking down closing his eyes
10.		Amy:	+keeps humming "Dadadadada dada dadahh"
11.		Taku:	Sorry I don't know. +smiles
12.		Amy:	hahahh ok how about- I like, +looking at the playlist
13.	→		"just like tee tee, tee tee"
	→		+singing while pointing finger down circling it
14.		Taku:	Uhh yeah, yeah +smiles
15.		Amy:	That's a good one
16.		Taku:	TEE TEE. +fingers from both hands pointing down

Prior to this extract, Amy had mentioned that she is a serious fan of the K-pop group Twice, and the topic turns here to her favorite songs. She grabs her smartphone and begins to scroll through her music playlist (lines 4-6). After asking if Taku knows "this Japanese song," she playfully starts singing to him over the screen: "Duna, nanana, nanana, nanana." She continues doing so until Taku denies knowing the song (line 12). Amy does not stop her musical interaction here; however, she instead moves on to the next song, asking, "OK, how about- I like," and singing, "Just like tee tee, tee tee." She moves her fingers downward in a circle, impersonating the group's choreography (lines 13-14). Recognizing the song, Taku utters, "Yeah, yeah" with a smile in line 15. He then utters the name of the song with a louder voice ("TEE TEE") while also gesturing with his fingers circling downward, conveying that he knows the song well, too (line 16).

This segment shows Amy utilizing her smartphone to choose her favorite of the group's songs from a playlist; however, she chooses not to play the songs. She instead sings or hums the songs herself, adding some choreographic hand gestures over the Zoom screen for Taku. Amy may be conveying her familiarity with the K-pop by displaying her capability to sing the tunes without playing them. Further, by singing with "playfulness" (Waring, 2012), she could be seeking alignment with him. Most of all, Amy appears to be adhering to the treatment of Zoom as the main space—a place where face-to-face interaction is still the centered action, especially at this point in the fourth week. Her music playlist also seems to play an important part in her music selection. While she supplies her

utterances, sings, and gestures over the main space of Zoom with Taku, she does not hide her smartphone from the Zoom screen. Thus, her smartphone's music playlist functions as the reference point in her main interaction. At the end of this interaction, Taku reciprocates to Amy's alignment-seeking action by equally demonstrating his own alignment; he utters, "Yeah, yeah" before mentioning the title of the song, "TEE TEE" and making the same choreographic gesture over the screen to match hers, which also symbolizes their mutual comprehension.

Image 5: Amy looking at the playlist on her smartphone



Image 6: Amy singing and sharing choreography



Another example of smartphone usage during Session 3 is depicted in the following extract. This time, the phone is embedded into the central interaction, as Amy shows a picture of her favorite YouTuber over the Zoom screen at an interaction resumption. Amy and Taku had been discussing their favorite YouTubers when Taku's Wi-Fi began to weaken and then froze. The extract starts when Taku's Wi-Fi has been restored, and the conversation resumes.

Extract 5: Do you know his youtuber? (Session 4)

1.	Taku:	Okay, okay. Hehehe +laugh
2.	Amy:	Okay? Okay, so: this guy.
→		**+bringing her smart phone closer to screen (image 7)**
→		**+shows a picture of a man in a thumbnail of a video**
		Uhhh (.) Do you know him?
3.	Taku:	+looks closer at the screen
4.	Amy:	Jack Septiceye. He's a famous youtuber.
		(2.5)
5.	Taku:	how many subscribers?
6.	Amy:	Thirty million.
7.	Taku:	THIRTY MILLION!

Image 7: "This guy." Amy shows the YouTuber's picture from her smartphone to Taku via the Zoom screen



After they resume the interaction, as seen in Image 7, Amy brings her smartphone closer to the screen to show a photograph of her favorite YouTuber, and asks Taku if he knows him (line 3). Amy provides his name (line 4) and reveals that he has 30 million subscribers after Taku asks her (line 5). After the extract, they continue their interaction about him and their other favorite YouTubers. Although this is a very short extract, Amy's visual use of her smartphone over Zoom to introduce the YouTuber is a very creative topic resumption. Furthermore, this "digital-on-digital" phenomenon seems to serve as a new technology-mediated practice to visually and effectively convey a certain meaning.

Thus, to summarize Session 4, we can see a hint of space development occurring within the conventional interactional space of Zoom. The playlist on Amy's smartphone does not just stay on her side; instead, it is a visible part of her Zoom-screen interaction. Thus, she turns this smartphone-Zoom interaction—singing and choreographic gestures—into a packaged, simultaneous multimodality. Extract 4's picture-sharing on the smartphone over the Zoom screen also demonstrates a shift toward multimodal digital-on-digital interaction, which would execute visible meaning-conveyance and occur more frequently as the sessions proceeded.

4.3 *Session 8: The synchronous use of multimodality and multilayered digital platforms*

This last extract from Session 8, the final session on the eighth week, shows further development with the students' utilization of a full range of resources. In it, we see a combination of multimodality and technology with the use of social media.

Extract 6: Scary roller coaster (Session 8)

1.	Amy:	In UK, uhh in UK, we have a big roller coaster park, a park
2.	Taku	Umm?
3.	Amy:	Uhhh it's scary cause one of the rides (.) it's like,
4.		horror theme (.) horror movie theme, eh I'll show you a picture.
5.		I'll send you a link or something. It's scary though ok I'll show ya.
6.		*uhhhh (3.0) Chotto matte. Please wait.
→		***+looking down trying to send a link via chat box**
7.	Taku:	uh ok
		+laugh
8.	Amy:	(her side of the picture freezes) ummm, uh the internet is so bad.
9.		ehhh (5.0) sorry my internet is so slow.
10.	Taku:	Did you find a good picture?
11. →	Amy:	you know what? **I'll send it to your instagram**,
12. →		**I'll send it to your instagram**.
13.	Taku:	Oh all right.
14.	Amy :	It's easier (5.0) uhhhh
→		**+looking down; trying to send instagram from her smart phone**
15.		uhhhhm it's a video (.) of the ride.
16.	Taku:	ummm
→		**+looking down on his smart phone**
18.	Amy:	and like, scary because it's like, looks like you're gonna be hit?
19.		but like, like by *swords, but uhhhm yeah it's a scary ride.
		*+swings an arm as if with a sword
20.	Taku:	+Looking down watching the video
21.		ohhhhh (10.0)* WOW, it's like,
		+getting face up; making a face
22. →		**it's like that,**
→		**+vertically raising his arm straight + laugh (image 8)**
23. →	Amy:	**yeah it's like *<u>THAT</u> (image 9)**
→		***+raising her arm showing the side of her hand upward**

Prior to the extract above, Amy had been telling Taku that she loves all things scary. She talks here about the "horror rollercoaster" (a ride in the UK with a horror-movie theme; lines 4-6), which she enjoys, and tries to describe how scary it is. Instead of using words to further depict the rollercoaster, Amy attempts to send Taku a link to a video of it through the chat box (lines 6-7). After she tries and fails to send it for a while, she experiences some technical difficulties with her internet (lines 8-9); then, she decides to send the video to his Instagram account instead, repeating, "I'll send it to your Instagram, I'll send it to your Instagram" (lines 11-12). Taku receives it, sees it, and reacts, "WOW," shaking his head and making a face (line 21). He follows this by making some gestures mimicking the rollercoaster, moving his hands vertically upward and uttering, "Ohh, it's like that," as seen in Image 8 (line 22). Amy answers, "Yeah, it's like <u>THAT</u>," emphasizing the repeated "that" with a louder voice and also moving her hand in a vertical direction (line 23) (Image 9). Here, it is interesting to observe both participants' reciprocal and identical gestures, as they likely reach a complete understanding and agreement on the scariness of the rollercoaster.

Image 8: After watching the video of the rollercoaster, Taku gestures with his hand up: "Ohh, it's like that"



Image 9: Amy responds, repeating Taku's "Yeah, it's like THAT," reciprocally making the same gesture that he has just made



In this extract, we can observe the interactional trajectory expansion to multiple directions. The students multimodally employ several new resources: the social-media platform, Instagram, alongside Zoom as a tool to send visual information to further Taku's comprehension of the topic through each other's smartphones. They treat Zoom as the main platform where they can interact face to face and utilize gestures, while simultaneously using the social media on their smartphones to exchange more detailed visual information outside of Zoom. In other words, Amy and Taku expand their discussion space beyond the main platform to make and convey their meanings, and return to the main one for confirmation checks of their comprehension. This accomplishes the co-construction of meaningful interaction through multi-layered digital platforms: the main one, Zoom; the side platform of the students' smartphones; and social media, as another internet platform. They synchronously utilize these technological resources, which help them pursue the goal of mutual comprehension through multiple translanguaging spaces.

5. Discussion

This study illustrates the nature of human interaction on a larger digital platform, Zoom, alongside the parallel use of available side resources and technological sub-platforms. We have observed the participants effectively adding visible information, constructing translanguaging actions, and creating multiple interactional spaces for more efficient meaning-conveyance and a mutual comprehension confirmation. The more the interactional space develops and expands as the sessions proceed, the more skillfully the students incorporate these other tools into their attempts to make meanings and convey them, and thus, the more communication is facilitated. To answer the first research question ("In naturally-occurring intercultural interaction over Zoom between L2 learners, what multimodal and technological resources are utilized, and do they each achieve meaning-making as part of translanguaging?"), Amy and Taku seem to engage in plenty of explicit

gestures to demonstrate and negotiate meanings to further each other's comprehensions throughout the sessions, perhaps to compensate for the lack of fluency in their communication. Taku is a L2 speaker of Amy's L1; thus, each likely has some trouble understanding what their partner means and we can therefore interpret some of their exaggerated reciprocal gestures (such as the rollercoaster one) as ways to demonstrate confirmed comprehension.

In addition, we observed the students utilizing multiple digital sub-platforms as the sessions proceeded, such as the chat box, smartphones, and social media. The chat box appears to be a handy tool for a lexical purpose, mainly used for spelling out words and expressions to clarify what was said (Extract 2), or to teach new expressions by writing them (Extract 3). For its part, a smartphone can act as a mini-platform device, secondary to the main desktop or laptop Zoom screen. It can offer multiple functions, such as checking the meaning of a word on a website (Extract 2), supplying references for musical interaction (Extract 4), or visually initiating a new topic (Extract 5). In data from outside these extracts, we could see the students using their phones for other purposes, including note-taking, preparing the topic list, and setting an alarm to time the session. Finally, the students' use of social media emerges as a partial departure from the main Zoom interaction, enabling the more personal action of sharing a video with a partner to instantly execute 'seeing is believing', as we saw with Amy sending a video to Taku's Instagram account. This dynamic integration of auxiliary digital tools mirrors findings by Hua and Liu (2026), who highlighted how L2 learners strategically employ diverse technological tools and semiotic resources to scaffold communication, share visual information, and facilitate meaning-making during digital interactions.

With regard to the second research question ("What types of spaces and sub-spaces develop during the online interaction, and do these spaces help the learners both reach mutual comprehension and improve their L2 interaction skills?"), we can obviously identify that the ***main interactional space*** in this study is Zoom. It is where they undertake all face-to-face communication with the use of linguistic, prosodic, and embodied resources. In the early sessions, we see the first emergence of sub-spaces, beginning with the chat box. For instance, in Extract 2, we can observe a repair being successfully executed to resolve a communication trouble; both students also use the tool to teach new words and expressions, as they spell out the words for their partner. As one of the handy functions attached to the main Zoom space, which seems to have served as a ***problem-solving, instructional sub-space***, this chat-box text interaction may not be considered as going *beyond* the main Zoom space, but more as a sub-space *within* it.

Second, the smartphone offered multiple functions, starting with the personal search for information on one side (Session 1). Later, in Session 4, the students began using the tool more openly; Amy utilized it as a reference point during the "singing" interaction, and for showing visual information in further parts of the discussion. A phone can thus be identified as a ***sub-space of multiple searches for and supplying of information*** that plays a role in the main interaction. As discussed earlier, it may have indicated a trajectory shift in communication during Session 4, as Amy's smartphone took on a more visible and meaningful part in the main interaction. Finally, in Session 8, the use of social media emerged; the participants had obviously become familiar with each other, and had developed a genuine relationship beyond Zoom. Instagram thus functioned as a ***semi-interactive sub-space*** for exchanging more private visual information during and outside of the main Zoom interactive space.

The participants' contingent development of these digital sub-spaces over the course of the sessions served to resolve their communication difficulty, and also helped further understanding of the meanings they aimed to convey. On top of the students' verbal and

embodied communication, the functioning and utilization of these sub-spaces, and how they went from being embedded in the main space to expanded outside of the main space, occurred contingently, as the participants understood what was necessary to reach mutual comprehension. As summarized in Table 2 below, their interactional spaces expanded as the sessions progressed. In the first session, they mostly attempted to stick to Zoom and its chat-box function, with a smartphone used on only one side; by contrast, in the fourth session they stepped up their smartphone use, and it took part in the interaction. By the eighth session, the two students extended the use of digital tools to the completely separate platform of social media, subsequently using identical gestures over the main Zoom space to confirm their joint comprehension. We identified the development of the pair's fluid use of interactional resources and repertories, while their identical gestures and smooth communication reflected their well-balanced interaction based on their firm alignment. In these ways, the students enhanced their overall L2 interaction skills: not only their fluency from listening and speaking practice, but also their linguistic proficiency and process of how to move forward the interaction, contingently opening and utilizing these sub-spaces. The following diagram depicts the main space and sub-spaces; following that, the table summarizes the relationship between the generation and functions of these technological spaces, and how the students' communication proficiency developed over time.

Diagram 1: Expansion of digital space and sub-spaces in Zoom communication

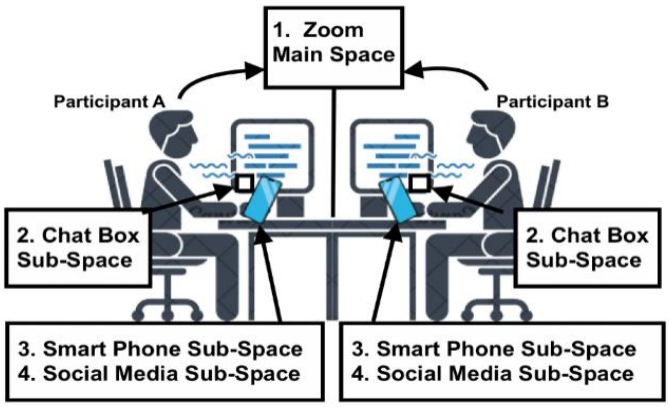


Table 1. Summary of digital translanguaging spaces

Technological Platform	Translanguaging Spaces	Functions / What Participants Can Do	What is Achieved
1. Zoom	*Main interactional space*	• Conduct face-to-face conversation • Interact via language use, gestures, and prosodies • Sing • Teach pronunciation	•Constructing interaction •Conveying meanings •Reaching mutual comprehension
2. Zoom chat box	*Problem-solving, instructional sub space*	• Spell out words and expressions	• Repairing • Clarifying •Teaching new words
3. Smartphone	*Sub-space of multiple searches for and supplying of information*	• Search for words on a website • View music playlist • List topics • Take notes • Time the session • Show a picture on Zoom	•Providing multiple forms of assistance with main interaction • Initiating a topic •Adding information •Session management (topics and timing)
4. Social media	*Semi-interactive sub-space*	• Show what is posted on your account • Send links, pictures, or videos to each other's accounts	•Sharing information • Side socialization

Table 2. Development and changes in sessions 1, 4, and 8

Session/Week	Observed Use of Translanguaging Resources	Translanguaging Spaces Used	Effectiveness in Interaction
Session 1 (Week 1)	• Mostly verbal interaction over Zoom • Exaggerated gestures • Side use of smartphone to search for words • Use of chat box for repair and spelling new words	Main interactional space Problem-solving, instructional subspace	• Attempting to arrive at alignment • Repair exercised to reach mutual comprehension • Moving on with new topics • Teaching new words • IRE verbal format emerged
Session 4 (Week 4)	• Smartphone's music playlist played a role in selection of songs for discussion • Singing/humming over Zoom • Digital-on-digital use of phone to show a picture over Zoom	Main interactional space Sub-space of multiple searches for and supplying of information	• The smartphone sub-space begins to become a PART of the interaction • It takes on a larger and closer role in the communication itself
Session 8 (Week 8)	• Sending and showing a video over social media • Main interaction is over Zoom • Identical gestures over Zoom	Main interactional space Semi-interactive sub-space	• As the use of digital tools extends to social media on smartphones, participants reach full, mutual comprehension • They exhibit comprehension confirmation and perfect alignment in their identical gestures • These lead them to have a balanced, smooth conversation

6. Conclusion, Implications, and Suggestions for Future Studies

This qualitative study explored L2 learners' development of multimodal resources and technological spaces from a translanguaging perspective during an eight-week e-tandem conversation program. We found that, as the participants began exhausting their translanguaging resources, they expanded their meaning-making and meaning-conveyance methods more efficiently and effectively. This was executed by simultaneously engaging in the use of multiple platforms: ongoing talk with each other on the main platform of Zoom;

side exchanges via the chat box; digital-on-digital interaction using their smartphones over the Zoom screen; and, finally, sending visual information via their social media accounts (on their smartphones). Their use of these interactive sub-spaces reflects the ways in which people's interactions can organically evolve and become more innovative.

Furthermore, undertaking the process of meaning conveyance and pursuing the goal of mutual comprehension, with no one instructing the participants on what to do, they successfully completed a repair (Schegloff et al., 1977) through the chat box, and performed the dialogic I-R-E sequence (Hellermann, 2003; Mehan, 1987) during the teaching-like segment through the main Zoom space, despite it being the students' first session. All of these main and side social actions were completely self-generated.

The sessions between Taku in Japan and Amy in the U.K. in this study offer some significant implications for educators. Theoretically, while there are few longitudinal studies on the multiple, parallel employment of a technological main space and sub-spaces, this study uncovered new ways in which these spaces are utilized for meaning-making and meaning-conveyance, adding to the findings from Ho and Tai (2024) and Satar (2016) that we drew on as our frameworks. We observed that the participants appeared to gradually exhaust all of the resources and platforms for translanguaging purposes, beyond their L1 and L2 languages, to negotiate meanings and to achieve mutually comprehensible interaction.

As for the practical implications and our suggestions for future studies, we recognized L2 learners' natural efforts to make sense of what they were discussing. This project, driven by the students' creative use of familiar technologies, successfully demonstrated their skills to negotiate and convey meaning in intercultural interactions as the sessions progressed. Educators may therefore consider incorporating similar eTandem programs into L2 classes while permitting the flexible use of other technological devices. Such an approach would enable L2 students to develop more authentic and natural interactive skills. Furthermore, future studies could expand this work by integrating rapidly advancing AI technologies into L2 programs to examine whether these tools can generate new functional spaces and foster increasingly unique, inclusive, and engaging technology-mediated language learning environments.

As Yao and Ling (2020) emphasize, the importance of computer-mediated/ technology-assisted learning's "inherently interdisciplinary and evolving nature" (p.8) should be widely recognized and utilized. This study's findings reveal how much language learning has progressed, moving far beyond those traditional confines to embrace more diverse, technology-mediated intercultural exchanges that prioritize authentic interaction, meaning construction, and mutual comprehension.

Declaration regarding usage of generative AI (Artificial Intelligence) tools

The authors declare that no generative AI technologies were used to draft, edit, or generate any portion of this manuscript.

Conflict of Interest

The authors declare no conflicts of interest regarding this manuscript.

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APPENDIX A

Conversation Analysis Transcription (Jefferson, 1983)

(.) Untimed perceptible pauses within turns
<u>words</u> Stress
CAPS Very emphatic stress
↑ High pitch on word
‾ Low pitch on word
. Sentence-final falling intonation
? Yes or no question, rising intonation
Phrase-final intonation (more to come)
- Glottal stop or abrupt cutoff of sound
Lengthened vowel sounds (extra colons indicate greater lengthening)
= Latch (direct onset or no space between the two units)
→ Highlights point of analysis
[ ] Overlapped talk: extra spacing is sometimes used to spread out the utterance to reflect the simultaneous beginning and ending of the overlapped talk
◦soft◦ Spoken softly or at a low volume
> < Increased speed
( ) (empty parentheses)
(words) Uncertainty transcription
.hhh Inbreath
hhh. Exhalation
$words$ Spoken in smiley voices

APPENDIX B

Transcription convention for multimodal aspects

Adopted from Mondada (2024) with some modifications:

++, **, @@, etc. Descriptions of embodied conduct (e.g., gaze and hand movements) delimited between two identical symbols and synchronized with corresponding stretches of talk or lapses of time
+---> Action continues across subsequent lines
--->+ Until the same symbol is reached
--->> Action continues after the extract
—— When full extension is maintained
fig Exact moment at which a screenshot is taken
Symbol showing temporal position within turns or segments of time
▼ When an annotation does not fit within the transcription's specialized place, it appears in a subsequent line with this symbol

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