Synchronous and Asynchronous Online Communication for Developing Foreign Language Speaking Skills

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Abstract

This study examined the effects of synchronous and asynchronous online communication using video conferences and video letters (VLs) on the development of foreign language speaking skills for Common European Framework of Reference for Languages (CEFR) A1 and B1 level learners of English. Two groups, one using the VLs and the other video conferencing (ZOOM), were constituted to compare the impact of the modes. Both groups were provided with the same topic for interaction with native English-speaking university students from the United States. Pre- and post-tests were conducted to examine the effects of each practice mode. The transcribed speaking tests were analyzed using the Complexity, Accuracy, and Fluency (CAF) framework (Housen et al., 2012). The post-test results revealed that in the ZOOM group, sentence complexity score and total number of words decreased significantly. The VL group showed no differences in word complexity and maintained sentence complexity. This study highlighted the influence of synchronous and asynchronous computer-mediated communication (CMC) approaches on speaking skills.

Keywords: computer-mediated communication, synchronous and asynchronous communication, speaking skills development

Introduction

The intersection of virtual environments and communication modalities has gained attention in foreign-language learning. The immersive possibilities offered by recent technologies have pushed the boundaries of language practice in virtual realms. Education frameworks in Asian countries has emphasized the use of technology in language classrooms (Pham et al., 2024; Wang, 2014). The use of technology alleviates challenges faced by Asian language learners, where access to authentic English is limited in face-to-face settings. It has been reported that e-learning tools provide valuable opportunities for student interaction and can be effectively used in classes (Pham et al., 2024). However, a critical gap remains in understanding the comparative benefits of synchronous versus asynchronous computer-mediated communication (CMC) for authentic language exchange.

Recent research highlights that speaking skills, the most commonly used aspect of communication, may not sufficiently develop through the Communicative Language Teaching (CLT) approach alone (Qhobosheane & Phindane, 2022). According to Qhobosheane and Phindane (2022), encouraging peer interaction in small groups inside and outside of claasrooms

may offer learners more authentic speaking opportunities while helping them feel comfortable to participate. Yanguas (2012) emphasized the benefits of using videos to enhance foreign language speaking skills and noted that learners had positive attitudes toward video-based learning, comparable to traditional face-to-face or audio-only methods. While synchronous communication with its fast-paced nature can be challenging for language learners, it can also be adapted to asynchronous communication, allowing learners to engage at a slower pace.

This paper examines how the differences between synchronous and asynchronous activities impact various aspects of speaking skills in foreign language learning. It also examines the effect of using videos in both synchronous and asynchronous modes in CMC on measuring the impact on language development. Through an in-depth analysis of the language by the learner, this study explores the pivotal role of technology in current language teaching practices. It provides valuable insights into the nuanced dynamics of synchronous and asynchronous communication, shedding light on their implications for effective foreign language instruction in virtual environments.

Synchronous Computer-Mediated Communication and Foreign Language Learning

Synchronous activities, by replicating face-to-face interactions, can enhance second language (L2) acquisition (Wang, 2014; Yang, 2022). Yang (2022) found that synchronous learning generally boosts the motivation of EFL learners. Despite some negative feedback, such as issues with interpersonal interactions, time management, and minimal reduction of anxiety, the study highlighted significant positive outcomes, including improved English learning attitudes, better concentration, and increased autonomous learning.

Ample evidence based on theoretical practices supports the hypothesis that synchronous videoconferencing activities contribute to foreign language learning. The Output Hypothesis (Swain, 1985, 1995) posits that allowing learners to express complete thoughts orally in the target language can enhance their conversational ability. Additionally, synchronous videoconferencing activities align with the Interaction Hypothesis (Long, 1996), suggesting that negotiated interaction aids learners in achieving a more target-like output. Studies examining language development using CMC tools (Guillén & Blake, 2017; Yanguas, 2010) have demonstrated its positive impacts on L2 speaking development. However, it remains unclear whether the use of video extends to subsequent speaking tasks for CEFR A1-B1 students learning English as a target language. This study aims to explore this question through a quasi-experiment by comparing pre- and post-test results between asynchronous and synchronous video exchanges.

Studies have explored the effects of using videos in languages other than English. Guillén and Blake (2017) focused on intermediate Spanish learners. Their test results, measured using the Versant speaking test, suggested overall improvement using CMC tasks. Yanguas (2010) compared how learners negotiated meaning in video, audio, and face-to-face interactions with Spanish L2 learners. The findings suggest that while audio-only input focuses on language, the use of video and face-to-face interactions adds visual cues that may support the context without relying solely on linguistic resources. Although studies claim that the use of synchronous CMC (SCMC) and asynchronous CMC (ACMC) is effective in foreign language learning, gaps remain in understanding how these different modes impact the linguistic aspects of speaking skills. Although theoretical foundations exist for investigating the potential benefits of SCMC for L2 learners, empirical research is necessary to scrutinize the widespread claims regarding its advantages. Therefore, this study aims to investigate the effects of using asynchronous and synchronous videos on English language learning to improve different aspects of speaking skills.

SCMC and Development of Foreign Language Speaking Skills

The efficacy of online language exchange programs in fostering speaking skills has been carefully investigated (Canals, 2020; Kawaguchi, 2016; Rahimi & Fathi, 2022; Ware & Kessler, 2016). Although the type of interlocutor is found to affect learner outcomes (Ziegler, 2016), interaction in synchronous computer-mediated communication (SCMC) with native speakers in online interactions has been shown to enhance speaking skills (Canals, 2020). Ware and Kessler (2016) highlighted the positive impact of active student participation in online discussions and formulating inquiries on language skill improvement. Ziegler (2016) noted that interaction in SCMC contexts can assist learners in identifying discrepancies between their interlanguage and the features of the target language. Kobayashi (2021) explained that online communication is found to be less intimidating than face-to-face interactions. It reduces the anxiety associated with face-to-face communication and allows students to focus on speaking. Additionally, SCMC tools using video can aid communication by conveying nonverbal elements in the same way as face-to-face communication (Canals, 2020).

An alternative investigation in SCMC using written text involved students from Japan and Australia engaging in online dialogues to learn Japanese as a second language (Kawaguchi, 2016). Focused discussions on specific topics and reciprocal feedback on written expressions affected participants' morphological and syntactic development. According to a recent study, English as a Foreign Language (EFL) students who used a dedicated app for interacting online with English speakers substantially improved their speaking abilities and willingness to communicate. Students expressed a positive reception toward these online speaking activities (Rahimi & Fathi, 2022). This collective research implies the substantial utility of online language exchange through SCMC facilitates learners' speaking skills.

However, precise linguistic competencies attainable through CMC learning remain inadequately established. Ziegler (2016) asserted that the connection between diverse CMC contexts and learner outcomes remains unexplored, particularly concerning the disparities between synchronous and asynchronous modalities. This study aims to explore the differences in language learning between synchronous and asynchronous speaking practices. To investigate this effect, delineating specific areas of potential enhancement achievable through CMC practices is imperative. Nevertheless, extant research on CMC tasks has predominantly assessed general speaking skills, posing challenges in pinpointing areas that improve speaking proficiency. For instance, Canals's (2020) study involving Spanish learners employed an oral assessment comprising interactive tasks to evaluate task achievement. The assessment encompasses scores based on fluency, intonation, pronunciation, grammar, and vocabulary precision. The analysis was based on the overall score and failed to examine specific improvement areas. While administering both previous and subsequent online engagement activities, the overall score was cautiously interpreted as it lacked a detailed description of the results. Zhou's (2023) examination of online exchanges used the International English Language Testing System (IELTS) speaking test as an assessment tool for speaking skills. While this test offers a snapshot of students' overall speaking proficiency at specific points in time, the results do not indicate the impact of interventions on factors influencing speaking skills. If we were to understand how online engagement in synchronous and asynchronous CMC modes affects specific speaking skills, it would enable instructors to select the most appropriate mode for each task and set goals that match the practice.

CMC and Connectivity

Another factor that has remained unexplored in CMC methodology and language development is connectivity with the interlocutor. The connection with online partners can vary because the

task can be synchronous or asynchronous, depending on how the activity is organized. The current CMC methodologies employed to develop L2 oral skills focus on diverse synchronous and asynchronous activities. Synchronous activities necessitate interlocutors to respond at a natural pace, facilitating the prompt reception of feedback and fostering seamless conversational development. However, as responses should be quick, they are less structured, and the words are informal. Responses do not have to be in sentences; pauses and fillers occur more frequently. The advantage of asynchronous activities is language production without immediate interaction, affording participants the autonomy to progress at individually tailored paces. The language in ACMC allows for more preparation; the structure is organized using sophisticated words and complex sentences. Asynchronous activities provide participants additional preparation time, potentially aiding beginners' readiness for FTF communication and supporting foreign language learners. However, these assertions warrant caution in the absence of empirical evidence.

Language Learning in ACMC and SCMC

Studies have explored the effects of different modalities and connectivity (Yanguas, 2010; 2012, Guillén & Blake, 2017). However, comparative analyses of ACMC and SCMC in language learning remain limited, and the findings are inconclusive. Both synchronous and asynchronous studies allow for authentic communication, which may lead to language learning (Yanguas, 2010), and observe no difference regarding vocabulary learning (Yanguas, 2012). In a study conducted by Yanguas in 2010, the impact of oral language proficiency was examined by comparing video, audio, and a face-to-face (FTF) group during a meaning-focused communicative task. This study involved 15 pairs of intermediate-level Spanish learners and analyzed the meaning of negotiation in task-based interactions. The outcomes revealed that both the video and audio groups exhibited results similar to those of the FTF group, particularly in turn-taking patterns and meaning negotiations during instances of misunderstanding. The video and audio SCMC with FTF modes were closely aligned, concluding that video and FTF interactions provide comparative opportunities for comprehensible input, feedback, and modified output during learner-to-learner task interactions.

In a subsequent study, Yanguas (2012) explored the differences between the two modes of oral SCMC (audio and video) and FTF interaction, focusing on vocabulary development. The study involved 58 Spanish learners undertaking a jigsaw task in pairs which incorporated new vocabulary. Although no significant differences were revealed between the groups regarding oral production or written recognition of vocabulary, the investigation clarified vocabulary-related aspects in the SCMC context.

Contrastingly, Guillén and Blake (2017) found disparities in the results of syntactic complexity between synchronous and asynchronous practices in their study with intermediate Spanish students pursuing hybrid courses. This study incorporated an asynchronous video forum followed by synchronous Tandem learning and chat exchanges. Their qualitative analysis observed that asynchronous video posts exhibited greater syntactic complexity than spontaneous conversations or chat posts.

Although these studies provided valuable insights into the effects of ACMC and SCMC on language learning, their specific impact on speaking skills remains uncertain. The present study attempted to elucidate the nuances of these effects in the context of language acquisition.

Task Assessment

Evaluating speaking skills is challenging because teachers might not employ tests that encompass the diverse distinctive features of speaking (Hatipoğlu, 2021). This action raises

concerns about L2 research and language instruction because of their holistic nature, making detailed monitoring of language proficiency development challenging. Therefore, this study adopts objective measures, such as the complexity, accuracy, and fluency (CAF) framework, and incorporates quantifiable metrics, such as speech rate. CAF assessment is a task-based language teaching approach that adopts a cognitive perspective, using the three dimensions of mastery and the key stages in L2 acquisition. These dimensions include 1) internalization of new L2 items (complexity), 2) modification of L2 knowledge (accuracy), and 3) consolidation and proceduralization of L2 knowledge (fluency) (Housen et al., 2012; Norris & Ortega, 2009; Skehan, 1998). For example, Housen et al. (2012) found that complexity influences the internalization of a new L2 target object during the knowledge development phase. Subsequently, it allows a more sophisticated and accurate language to be obtained, ultimately consolidating L2 knowledge for enhanced fluency and performance. These objective measures have gained prominence in contemporary L2 acquisition research (e.g., de Jong & Mora, 2019; Tavakoli, 2016; Tavakoli, Campbell, & McCormack, 2016; Tavakoli, Nakatsuhara, & Hunter, 2017).

The advantages and challenges of synchronous and asynchronous language practice for efficient foreign language speaking skills has not been explored and delineated, especially when compared against each other.

This study investigates the research question of how participation in authentic language practice through both synchronous and asynchronous methods distinctly affects subsequent speaking performance.

Considering the CAF assessment framework, the research question posits that synchronous online exchanges requiring immediate real-time responses are more likely to improve the distinctive features of spontaneous speaking. Conversely, asynchronous exchanges allow participants to prepare, potentially enhancing aspects of written language such as complexity and accuracy.

Methods

Participants

The study included 24 first- and second-year students at a private university in Japan. Participants were randomly selected from the English class, and only those who submitted consent forms participated in the full data collection for this study. All participants were non-native English speakers whose L1 was Japanese, with English proficiency levels of A1-B1 in the CEFR and scores of approximately 250-500 in the Test of English for International Communication (TOEIC).

Participants were divided into two groups. One group engaged in asynchronous activity using recorded videos, referred to as the video letter group (VL group), and the other with synchronous activity using the real-time video conferencing tool Zoom (Zoom group). The Japanese students were assigned native English-speaking university students from the US as language partners. Partners remained the same throughout the study period.

Task

The current study adopts the E-Tandem activity for its authentic communication and beneficial outcomes in addition to improving language skills. This study was conducted between October 2020 and June 2021. The pairings were established at different times of the year, but all participants followed the same five-week procedure. The students were instructed to exchange

ideas based on each topic selected by the instructor. Students made topic-related videos, and their language partners were asked to respond with their videos. The participants were asked to brainstorm ideas before the VL recording. Weekly tasks included self-introductions, describing personalities, and discussing personal idols and role models. Before starting the tasks, a pre-test was conducted in which the participants recorded a one-minute speech about themselves. After completing the tasks, at the end of the five-week period, participants also made a post-test one-minute speech (see Figure 1). The participants were also asked to submit their TOEIC scores in December 2020. The TOEIC score was used to screen and select the target participants for this study. After the post-test, the participants completed a short survey on their experiences in the study. The learners were presented with two survey items: 1. Do you think the topic was interesting? and 2. Please share your comments regarding this activity. Their native English-speaking language partners were also asked to share their comments to determine whether the activity was not an overload.

Figure 1.

Weekly task and topic

CMC Tools

The asynchronous online tool employed in this study was a video-sharing application called Flipgrid (https://info.flip.com). Flipgrid is an interactive video discussion platform enabling users, often students and educators, to generate and distribute concise video responses. This asynchronous video communication empowered participants to share video responses to stimuli or questions. Widely employed in educational contexts and research (Edwards & Lane, 2021), this platform fosters dynamic and collaborative discussions and allows individuals to articulate their thoughts, ideas, and insights using videos, unlike conventional written responses. Synchronous online exchanges were facilitated using the ZOOM conference tool. ZOOM was selected because of its familiarity with most participants.

Data Analysis

Pre- and post-test sound files were collected and transcribed for analysis. Two transcribers, highly proficient in English, checked the data. All discrepancies were checked before data analysis. The transcribed data were examined using CAF to reflect the major stages of L2 acquisition (Norris & Ortega, 2009), and an objective score was calculated for comparison. The data were analyzed using paired t-tests and computer statistical analysis software R.

Fluency

Language fluency was assessed based on words per minute and speech breakdown. The number of words was measured using the phonation time ratio and total number of words. Speech breakdown was calculated based on the number of silent and filled pauses. Silent pauses were analyzed using the Praat phonological analysis software (Boersma & Weenink, 2018). The silence threshold was set to -25dB, and the minimum duration was set to 0.3s, referring to the finding from de Jong & Bosker (2013) on the correlation between pauses and L2 proficiency. The filled pauses are counted manually.

Accuracy

To evaluate the language production accuracy, the percentage of error-free clauses per Analysis of Speech-unit (AS-unit) was calculated. The counted errors were based on vocabulary, grammar, and syntax. The errors included misuse or inaccurate use of words, including L1, repetition, deletion of words, articles, singular/plural misuse, tense, and word order. The fillers were deleted before analysis. After the evaluation, the rater scores for 20% of the data were compared with those of another rater to calculate inter-rater reliability, yielding 90% agreement. Discrepancies between the two raters were discussed. After reaching an agreement, the first rater independently examined the remaining data.

Syntactic Complexity

Before text analysis, repeated, self-repaired, and filler words and L2 use were deleted. Syntactic complexity was calculated based on the number of words per AS-unit (Foster et al., 2000). AS-unit is a spoken data unit that counts utterances of single speakers using independent clauses or subclausal units, together with any associated subordinate clause(s) (Foster et al., 2000, p.365). The AS-unit has been widely used in spoken data research.

Lexical Diversity

McCarthy's Measure of Textual Lexical Diversity (MTLD) was adopted to quantify lexical and vocabulary diversity regarding words used in a single task. McCarthy and Jarvis (2010) claimed that MTLD does not depend on text length in the 100–2,000-word range. The MTLD analysis was based on the same type-token ratio, set to 0.72. A higher MTLD score indicated a more diverse vocabulary.

Lexical Complexity

An additional vocabulary analysis was conducted to explore potential differences in vocabulary usage across various task types. The percentage of words employed was within each level of the New JACET List of 8,000 Basic Words (2016). The New JACET List of Basic Words was based on the British National Corpus (BNC) and the Corpus of Contemporary American English (COCA) and serves as an educational word list for Japanese learners of English. Base Level 1,000 comprises the most frequently used 1,000 words in English, whereas Base Level 2,000 encompasses the 2,000 most commonly used words. Word-level percentages were computed for the initial 1,000 words, and that exceeded the Base Level of 2,000 words. Notably, proper nouns, vocabulary specific to the first language, and fillers were excluded from the base-level list.

Results

Quantitative analysis was conducted using the Wilcoxon signed-rank pair test, a non-parametric statistical test, in the R statistical computing environment. Table 1 shows pre-and post-test CAF scores. The comparison on the right shows the outcomes.

Fluency

Regarding fluency, while no statistically significant difference was observed ($p > .05$), the ZOOM group exhibited a decline in articulation rate, as evidenced by a reduction in the number of words produced during phonation time (VL Pre: M = 2.62, SD = 0.51, VL Post: M = 2.44, SD = 0.44; ZOOM Pre: 2.15, SD = 0.90, ZOOM Post: 1.57, SD = 0.58).

Table 1.

Results of pre-and post-test CAF scores

				Pre Test			Post Test		Pretest-Posttest comparison				Power (1-β)
			n	M	SD	n	M	SD	p	Z	r		
Accuracy	Error Rate	VL	13	1.93	2.03	13	2.19	2.05	0.74	0.34	0.09		
		ZOOM	9	4.18	4.25	9	4.32	2.43	0.66	0.44	0.12		
	Speech Rate	VL	13	101.34	14.93	13	81.48	25.45	0.06	1.90	0.52		
		ZOOM	9	76.49	25.36	9	52.11	20.91	0.07	1.77	0.49		
Fluency		VL	13	2.62	0.51	13	2.44	0.44	0.29	1.07	0.30		
	Articulation Rate	ZOOM	9	2.15	0.90	9	1.57	0.58	0.16	1.40	0.38		
	Syntactic Complexity	VL	13	11.40	2.92	13	9.00	4.68	0.24	1.16	0.32		
Complexity		ZOOM	9	10.35	5.01	9	4.88	7.04	0.02	2.25	0.62	***	0.96
	Lexical Diversity	VL	13	30.07	12.98	13	33.30	15.41	0.61	0.50	0.14		
		ZOOM	9	25.71	12.21	9	28.00	10.30	0.39	0.87	0.24		

Note. *small *r* = .10, **medium *r* = .30, ***large *r* = .50 (Mizumoto & Takeuchi, 2011)

Accuracy

There was no statistically significant difference in accuracy between the pre and post-test in both VL and ZOOM groups (VL Pre: M = 1.93, SD = 2.03, VL Post: M = 2.19, SD = 2.05; *p* = .74; ZOOM Pre: 4.18, SD = 4.25, ZOOM Post: 4.32, SD = 2.43, *p* = .66).

Syntactic Complexity

The results reveal a statistically significant difference in syntactic complexity when using ZOOM (Z =2.25, r = .62, *p* =.02) (Figure 2). The statistical power obtained was higher than .80, indicating strong significance (ZOOM power = 0.96). This was evidenced by a decrease in the number of words per AS-unit between the pre- and post-test results (VL Pre: M = 11.40, SD = 2.92, VL Post: M = 9.00, SD = 4.68; ZOOM Pre: 10.35, SD = 5.01, ZOOM Post: 4.88, SD = 7.0).

Figure 2.

Syntactic complexity in pre- and post-test
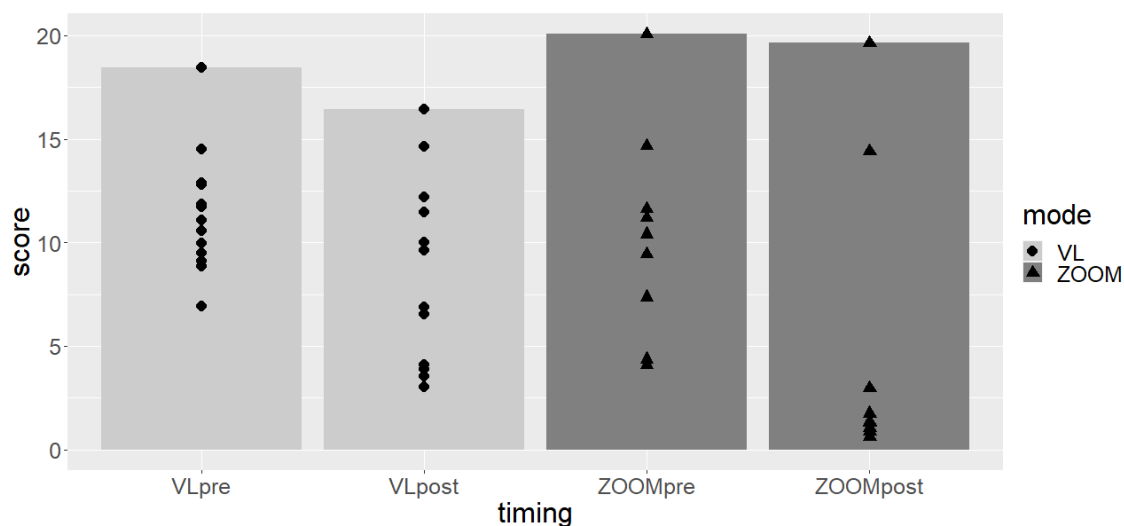
Total Number of Words

The paired Mann-Whitney test revealed a notable disparity within the ZOOM group (ZOOM: Z = 1.92, r = .45, *p* =.05, Power = .42)(Table 2), which exhibited a discernible decrease in the overall number of words (VL Pre: M = 59.62, SD = 20.05, VL Post: M = 70.08, SD = 26.59;

ZOOM Pre: 64.55, SD = 21.86, ZOOM Post: 51.9, SD = 25.02) (Figure 3).

Table 2.

Result of pre-and post-test score on total number of words

	Pre Test			Post Test			Pretest-Posttest comparison				Power (1-β）
	n	*M*	*SD*	*n*	*M*	*SD*	*p*	*Z*	*r*		
VL	13	59.62	20.05	13	70.08	26.59	0.28	1.19	0.22		0.42
ZOOM	9	64.66	21.86	9	51.9	25.02	0.05	1.92	0.45	**	0.42

Note. *small r = .10, **medium r = .30, ***large r = .50 (Mizumoto & Takeuchi, 2011)

Figure 3.

Total number of words in pre- and post-test
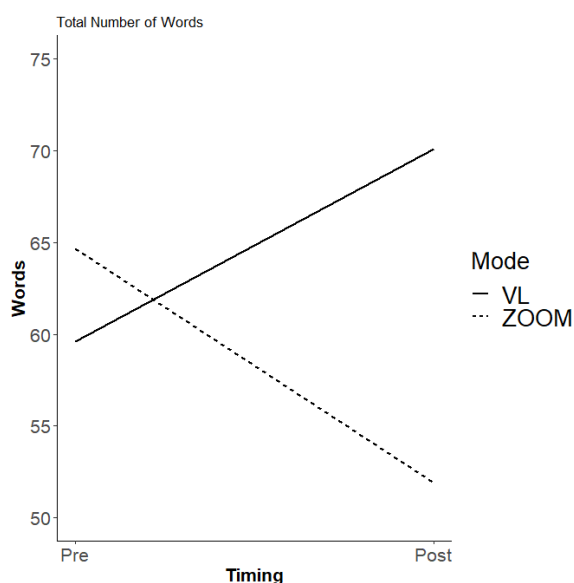
Lexical Diversity

There was no difference in lexical diversity between the pre- and post-test in both VL and ZOOM groups (VL Pre: M = 30.07, SD = 12.98, VL Post: M = 33.30, SD = 15.41; p = .61; ZOOM Pre: 25.71, SD = 12.21, ZOOM Post: 28.00, SD = 10.30, p = .39).

Lexical Complexity

Table 3 and Figure 4 show the word usage from pre- to post-test. The left graph illustrates the average percentage of vocabulary at the 1000-word level in the pre-and post-test, while the right graph represents vocabulary levels ranging from 2000-8000 words. The post-test results for the ZOOM group exhibited a higher percentage of vocabulary at the 1000-word level and a correspondingly lower percentage within the 2000-8000 word range. In contrast, the post-test results for the VL group indicated a decrease in the percentage of vocabulary at the 1000-word level and a concurrent increase in the percentage within the 2000-8000 word range compared to the ZOOM group.

This discrepancy suggests that the VL group more sophisticatedly used the vocabulary, filtering out basic and extraneous terms. Conversely, the vocabulary employed by the ZOOM group appeared to be more rooted in basic lexical items.
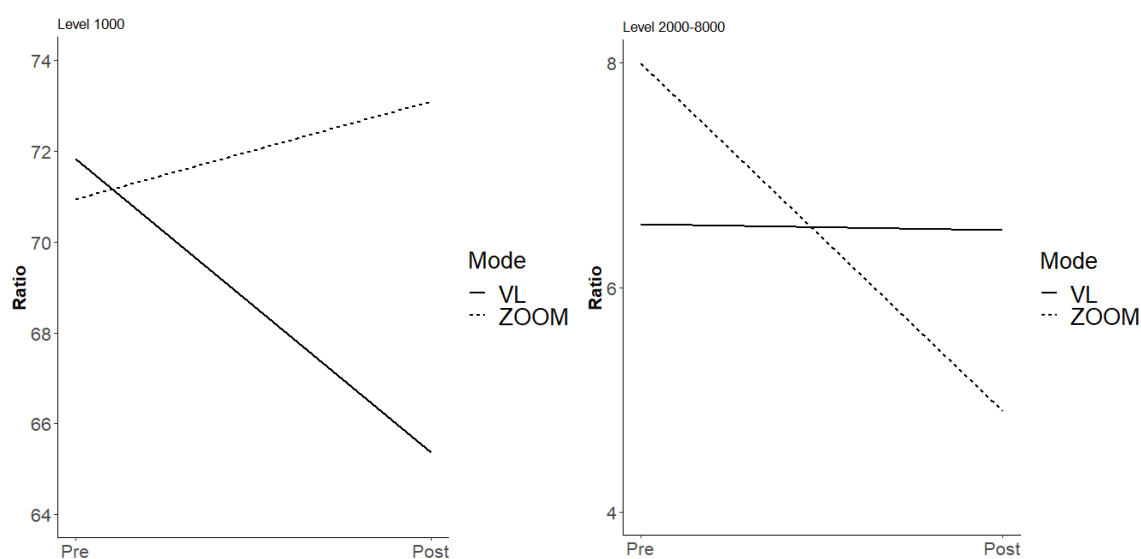
Table 3.

Results for average word level percentage of pre-and post-test

	VL_Pre	VL_Post	ZOOM_Pre	ZOOM_Post
Word Level 1000	71.83	65.37	70.93	73.08
Word Level 2000-8000	6.56	6.51	7.99	4.9
Words not on the list	6.28	8.39	6.39	7.14

Figure 4.

Average word level percentage for pre- and post-tests

Practice Sessions

The data represents the total word count per topic during the three exchanges conducted in this study. In Figure 5, the left graph shows the results of the learners, and the right shows those from native English-speaking partners. In both instances, the ZOOM group had higher total word counts. This discrepancy is attributable to the extended time allocated for the task in the ZOOM setting (15 mins) compared to 5 mins recording in the VL group.

Table 4 shows that native English speakers had a greater total word count than the learners under both experimental conditions.
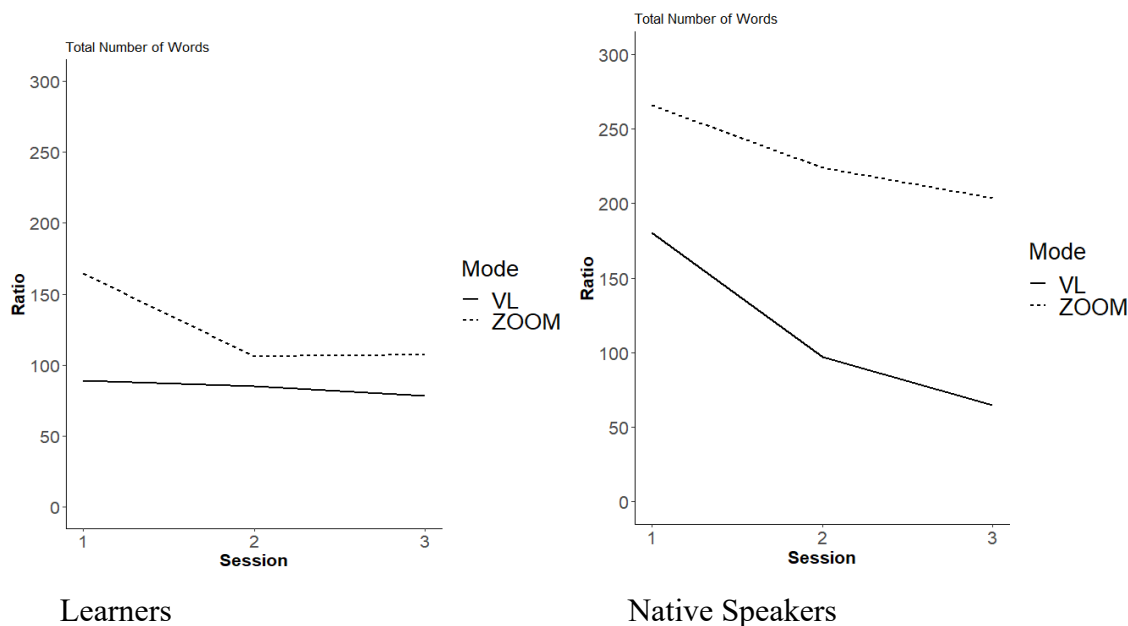
Table 4.
Descriptive statistics of total number of words for each practice session

		Session 1			Session 2			Session 3		
		n	M	SD	n	M	SD	n	M	SD
Learners	VL	13	89.38	27.76	13	85.13	37.51	13	78.31	20.16
	ZOOM	9	164.22	165.37	9	105.89	95.86	9	107.44	90.81
Native	VL	13	180.33	117.85	13	97.33	42.97	13	65.00	33.14
	ZOOM	9	265.67	119.47	9	224.00	97.53	9	203.33	65.58

Figure 5.

Total number of words for each practice session

Learners   Native Speakers

Practice Session Word Level

In the case of vocabulary level 1000, learners in the ZOOM group used more level 1000 words than those in the VL group (Table 5, Figure 6). In session 2, the VL group used more level 1000 words. For native speakers, the VL group consistently used more level 1000 words than the ZOOM group.
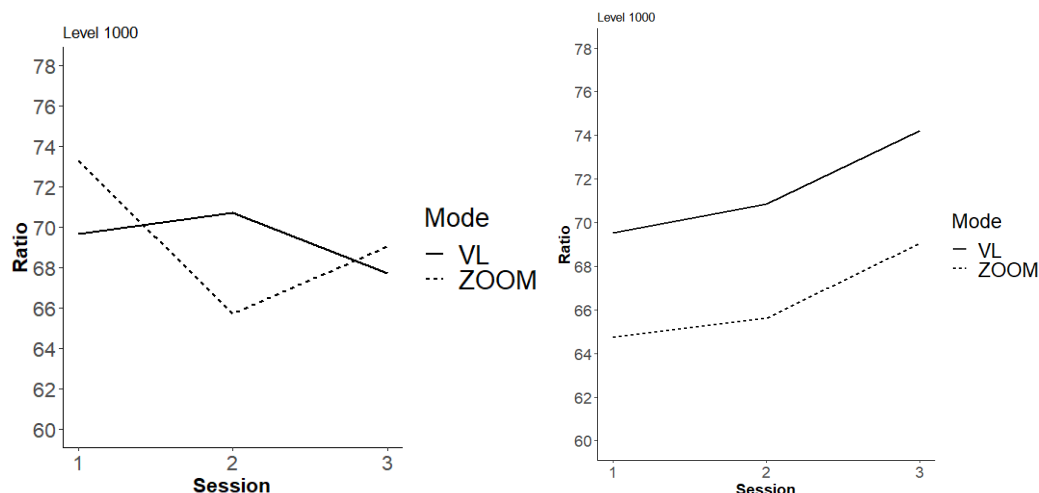
Table 5.

Descriptive statistics of Level 1000 for each practice session

			Session 1			Session 2			Session 3	
		n	*M*	*SD*	n	*M*	*SD*	n	*M*	*SD*
Learners	VL	13	69.67	5.07	13	70.73	7.12	13	67.73	4.63
	ZOOM	9	73.27	10.02	9	65.72	9.11	9	70.68	6.16
Native	VL	13	69.51	2.29	13	70.86	3.64	13	74.21	2.24
	ZOOM	9	64.73	6.11	9	70.73	2.41	9	69.06	2.65

Figure 6.

Level 1000 words for each practice session

Learners   Native speakers

In contrast, with vocabulary levels ranging from 2000–8000 words, disparities emerged within the VL groups concerning the average percentage between learners and native English speakers (Table 6). Specifically, native English speakers consistently demonstrated a higher percentage of vocabulary at the 2000-8000-word level for Topics 1 and 2 in the VL group (Figure 7). For the learners, the ZOOM group scored slightly higher than the VL group. In session 3, the ZOOM group showed a decline, whereas the VL group remained stable. Session 3 showed a decline in vocabulary at the 2000-8000-word level for the VL group, which was noted among native English speakers.
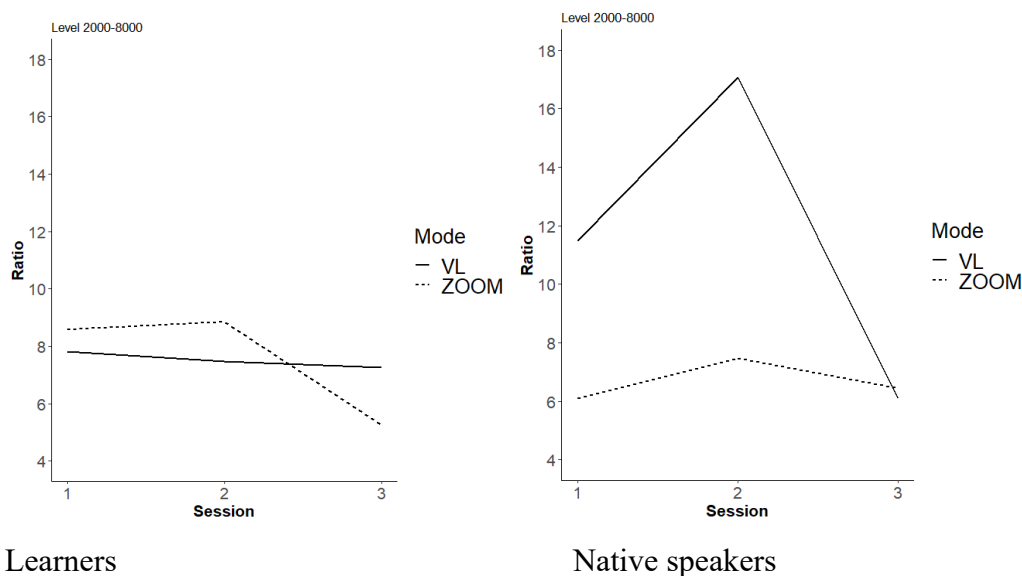
Table 6.

Descriptive statistics for levels 2000–8000 for each practice session

		Session 1				Session 2				Session 3		
		n	*M*	*SD*	n	*M*	*SD*	n	*M*	*SD*		
Learners	VL	13	7.82	2.32	13	7.48	2.56	13	7.27	3.58		
	ZOOM	9	8.59	3.19	9	8.86	5.34	9	5.26	3.24		
Native	VL	13	11.50	3.01	13	17.06	0.53	13	6.11	3.61		
	ZOOM	9	6.09	2.51	9	7.49	0.52	9	6.45	0.32		

Figure 7.

Level 2000–8000 words for each practice session

Learners   Native speakers

Discussion

While addressing the first research question, the distinction between the two modes of practice is evident. Notable differences were found in the pre-and post-test results on sentence complexity, the total number of words, and, particularly, the vocabulary level of 2000-8000 words. In the ZOOM group, the sentence complexity score and total number of words decreased significantly in the post-test, while the VL group observed no statistically significant difference when comparing the pre- and post-test outcomes.

The decrease in the syntactic complexity score was affected by the total number of words produced in the post-test in the ZOOM group. The score indicated that after practicing in ZOOM, the sentences were simplified. Practice in ZOOM reduced the use of word level 2000-8000 in session 3, which may be due to difficulties in using higher-level words during the instant exchange. Although the difference was not statistically significant in the VL group, the average number of words increased in the post-test. Owing to the increase in the total number of words, the percentage of word-level 1000 also declined. However, the percentage of level 2000-8000 remained stable, implying that more difficult words were used in the VL post-test.

The ZOOM group exhibited an augmentation of fewer complex expressions using basic vocabulary. This characteristic indicated spontaneous spoken discourse and may be attributed to prioritizing instantaneous exchange and conversational flow over intricate vocabulary selection and expressions. The decrease in the total number of words may be attributed to a reduced word count during the practice exchange. In certain instances, learners encountered challenges in understanding native English speakers and thus responded with short, fixed expressions or brief answers.

In the practice session of the VL group, similarly to its native group, the number of level 1000 words increased after each session, whereas it was constant for level 2000–8000 words. This fact can be attributed to the interaction with native English speakers in the video, the knowledge acquired by repeatedly replaying the video, and looking for difficult or unfamiliar expressions used in the video by native speakers. Furthermore, if learners could not solve the problems

themselves, they could stop watching the video and ask the teacher in their native language, which occurred several times weekly in the VL group. However, for the ZOOM group, it was difficult for ZOOM partners to seek help and obtain responses that the learners could understand when faced with language problems.

Another reason the ZOOM group showed a decrease in the syntactic complexity score and the total number of words in the post-test is that the preparation may not successfully help in responding to the questions instantly. Although both groups of learners were allowed to prepare before each session, the exchange seemed to have stalled in the ZOOM group because the conversation did not proceed in the expected direction, and any prepared answers or explanations were not helpful. In the VL group, when they received questions, the learners had time to respond to questions or requests until the next video was sent. This act allowed them to prepare the necessary language with the appropriate content.

The pre-and post-test results have proven that the difference in practice between ZOOM and VL affects subsequent speech in sentence complexity, although practiced with both native English speakers. Notably, native English speakers in the ZOOM practice group employed more than twice as many words as the learners. For learners unaccustomed to conversing with native English speakers, difficulties in comprehension may have allowed them to adopt concise expressions or limited responses. Another important factor to consider is the time allowed for the VL groups. For VL groups, brainstorming time was allowed before the 5-minute recording. This preparation time may have affected the results for syntactic complexity.

Investigating the Impact of Video-Based CMC on EFL Speaking Skills

In the context of English as a Foreign Language studies, research on SCMC and ACMC using videos has not sufficiently elucidated its effect on speaking skills. Based on the finding that video use creates opportunities to practice the target language with native speakers across borders (Wang, 2014) and reduces anxiety (Yanguas, 2012), this study focuses specifically on the impact on speaking in English language learning, rather than overall language proficiency. This study determined the effects of asynchronous and synchronous interactions with native speakers on accuracy, fluency, and sentence complexity. The differences in CMC methods and their effects on English language learning can be considered and applied to future learning and teaching methods.

Limitations and Future Research

This study conducted a comparative examination of SCMC and ACMC and observed distinct impacts on subsequent speech outcomes. Specifically, engagement in SCMC practice influenced sentence complexity, with participants avoiding complex sentences during real-time conversations. Despite the same engagement in the ACMC, no negative changes were observed in the subsequent speaking tests. These findings underscore the differential effectiveness of each mode when incorporating CMC tools for language learning purposes.

Several considerations must be focused on when extrapolating these results to educational settings. First, this study has a small sample size of limited exchange sessions that comprise learners at the basic proficiency level. Additionally, the absence of a control group precludes exploring the effects of ACMC by comparing it with a group that did not use any CMC tools. Furthermore, the variability in individual preparation and practice times should be considered carefully to assess the accurate impact of each mode. Especially in the first session, both learners and native speakers were nervous about the activity, which affected the preparation time. With participants familiarizing themselves with the activity and their partners, the preparation time may have changed. Another limitation was the assessment of speaking skills.

Pre- and post-tests may be advantageous for the VL groups in recording video practices for this type of limited-time test.

Future research endeavors might involve intermediate-level learners because their linguistic awareness could enable a more detailed understanding of native speakers' linguistic nuances. Such investigations could shed light on the diverse impacts of different CMC tools on speaking skills.

Conclusion

The current study revealed that synchronous language exchange using a video conference tool negatively impacted syntactic complexity and the total number of words in the subsequent speaking test, while asynchronous language exchange using VL did not show a significant statistical difference. Further investigation revealed that complex words were constantly used in the practice sessions for the VL group. The use of VLs may be more effective for beginner-level learners because they can replay videos to understand native speakers' speech at their own pace. In future studies with more sessions, the VL groups may develop well-balanced speech with simple and complex words.

The use of VL for the E-Tandem activity received positive feedback regarding interactions with native speakers. The use of asynchronous online communication tools supports classroom learning. However, teachers should consider how the amalgamation of both synchronous and asynchronous tools may best suit each language goal.

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Biodata

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