Journal of Current Studies in SDGs
Homepage : https://journal.i-ros.org/index.php/JOCSIS
Email : jocsis@i-ros.org

e-ISSN 3089-7564
Vol.4, No.1, March 2028
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Synchronous Video Conferencing and Language Learning Outcomes: A Mixed-Methods Study of Google Meet in Indonesian Higher Education for Sustainable Development Goals (SDGs)

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DOI : https://doi.org/10.63230/jocsis.4.1.349

Sections Info

Article history:
Submitted: May 7, 2026
Final Revised: August 13, 2026
Accepted: October 6, 2026
First Available Online: November 13, 2026
Publication Date: March 27, 2028

Keywords:
Cooperative Learning;
Learner Involvement;
Linguistic Proficiency Outcomes;
Real-Time Learning;
Video Conferencing.

ABSTRACT

Objective: *To examine the impact of synchronous video conferencing on language learning outcomes in higher education, specifically focusing on the utilization of Google Meet in Indonesian university language courses. The study examined the impact of synchronous contact on student engagement, collaborative learning, and perceived language growth in online language learning contexts.* ***Method:*** *A mixed-methods research methodology was utilized, comprising 60 graduate students enrolled in Indonesian language instruction programs at a university in Indonesia. Quantitative data were gathered using a Likert-scale questionnaire assessing engagement, perceived language learning outcomes, and attitudes toward synchronous learning, whilst qualitative data were derived via semi-structured interviews and classroom observations. Quantitative data were analyzed utilizing descriptive statistics, Pearson correlation, and regression analysis, and qualitative data were assessed by thematic analysis.* ***Results:*** *Students indicated notably high levels of engagement (M = 4.00) and perceived enhancements in speaking and listening abilities during synchronous sessions. A favorable correlation was observed between involvement and speaking enhancement (r = 0.27), while breakout-room conversations markedly improved collaborative interaction. Nonetheless, difficulties including internet access issues, video conferencing tiredness, and restricted nonverbal communication were also noted.* ***Novelty:*** *The findings indicate that synchronous platforms can efficiently facilitate interactive and collaborative language learning when integrated with suitable pedagogical methodologies and institutional backing.*

INTRODUCTION

The swift proliferation of digital technologies has revolutionized the realm of higher education globally. In recent years, synchronous online communication systems have emerged as essential instruments for education, especially following the COVID-19 epidemic. Universities worldwide have progressively implemented video conferencing technology to facilitate hybrid and fully online education, enabling real-time interaction between teachers and students irrespective of geographical limitations. These platforms are particularly crucial in language education, where interaction, feedback, and communicative practice are fundamental elements of learning. Synchronous communication methods in second language acquisition can replicate classroom

engagement by facilitating vocal discourse, collaborative activities, and multimodal communication via audio, video, and shared digital resources. In nations with extensive geographical areas like Indonesia, where universities frequently cater to students in remote locations, synchronous video conferencing is essential for fostering equal access to language education and improving learners' communicative ability.

Synchronous video conferencing denotes digital communication technology enabling simultaneous interaction among participants with live video, audio, and text features via the internet. Platforms like Google Meet, Zoom, and Microsoft Teams offer features such as screen sharing, breakout rooms, real-time subtitles, and collaborative document sharing. These elements provide possibilities for language learners to participate in communicative exercises that mimic face-to-face interaction. In a virtual language lesson via Google Meet, students can be segmented into breakout rooms to analyze an English reading text, articulate their thoughts through screen sharing, and obtain prompt feedback from both peers and instructors. This synchronous engagement can enhance language practice, meaning negotiation, and collaborative learning, which are acknowledged as essential mechanisms for second language acquisition.

An increasing amount of research has examined the function of synchronous online platforms in language instruction. Researchers investigated the impact of videoconferencing capabilities on student engagement in online English as a Foreign Language (EFL) courses in one study. The study employed a mixed-methods approach incorporating surveys and classroom observations, revealing that synchronous communication markedly enhanced students' willingness to engage and promoted greater participation relative to asynchronous learning environments. (Astutik et al., 2025; Hoo et al., 2025; Liu, 2025; Nyamekye et al., 2025). These findings indicate that real-time contact can augment engagement and facilitate opportunities for significant language utilization.

Likewise, another study examined the efficacy of video conferencing in enhancing speech proficiency among university students studying English as a second language. The researchers utilized a quasi-experimental methodology to compare students involved in synchronous online discussions with those participating in conventional classroom training. The findings revealed that students who consistently participated in online video-based conversations exhibited enhanced speaking fluency and pronunciation correctness (Huong & Diem, 2025; Yaru & Peng, 2025; You et al., 2024). The authors contended that synchronous communication facilitates prompt feedback and genuine conversational practice, both of which enhance language development.

In a separate study, researchers examined the educational potential of breakout room activities in videoconferencing settings. The study, through qualitative analysis of recorded online classes and student interviews, determined that small-group discussions in breakout rooms facilitated collaborative learning and enhanced peer interaction opportunities (Macur, 2024; Nganga et al., 2025; Walt & Bosch, 2025). Participants indicated that the smaller group environment alleviated anxiety and promoted more language utilization. These findings underscore how particular characteristics of video conferencing systems might facilitate communicative language teaching methodologies.

Conversely, certain research have recognized difficulties linked to synchronous online learning. One research experiment examined students' experiences of "video conferencing weariness" over extended online sessions. Through the use of survey data and cognitive load analysis, the researchers determined that excessive screen time and continual self-monitoring during video conversations may result in diminished attention and motivation (Basch et al., 2025; Başer & Şahin, 2025; Roy, 2025; Tarnutzer et al., 2023). Although synchronous platforms promote interaction, these findings suggest that

inadequately planned online sessions may detrimentally impact learners' cognitive engagement.

Additional study has investigated technology adoption and digital literacy as determinants affecting the efficacy of synchronous learning tools. In a study examining university students' utilization of online communication platforms, researchers employed structural equation modeling to assess the correlation between perceived utility, convenience of use, and learning results. The findings indicated that students who regarded videoconferencing tools as accessible and educationally beneficial were more inclined to engage actively in online discussions and collaborative activities (Carmi, 2024; Köstler & Wolff, 2025; Shittu et al., 2025; Sultana et al., 2025; Velu et al., 2025). These findings highlight the significance of technological proficiency and institutional backing in optimizing the advantages of digital learning settings.

Collectively, current research suggests that synchronous video conferencing systems enhance interaction, boost student engagement, and foster the development of communicative competence in language learning environments. Research constantly underscores the educational significance of real-time discourse, collaborative activities, and prompt feedback in facilitating language acquisition. Furthermore, technological functionalities like breakout rooms and screen sharing allow educators to employ communicative language teaching methodologies in virtual classrooms.

Notwithstanding these advancements, significant gaps persist in the literature. Initially, numerous prior studies have predominantly concentrated on platforms like Zoom or Microsoft Teams, whereas there is comparatively few study investigating the pedagogical effects of Google Meet in language education contexts. Secondly, the majority of current research has depended on either quantitative surveys or qualitative case studies, with a limited number of studies utilizing mixed-methods designs that combine statistical analysis with comprehensive classroom observations. Third, there is a deficiency of empirical study investigating synchronous videoconferencing inside Indonesian higher education, where infrastructural limitations, cultural communication patterns, and linguistic variety may influence the efficacy of digital learning technologies. Addressing these gaps is crucial for cultivating a more thorough comprehension of how synchronous communication technologies affect language learning results in various educational settings.

This study aims to examine the correlation between synchronous video conferencing and language learning results among university students in Indonesia. This research specifically investigates the impact of Google Meet as a synchronous communication platform on students' engagement, interaction habits, and perceived language progress. This study examines the subsequent research inquiries:

(1) What is the impact of synchronous video conferencing using Google Meet on student involvement and interaction in university language courses?
(2) What effect does the utilization of Google Meet have on students' perceived language acquisition outcomes?
(3) What are the perceptions of students and instructors on the benefits and challenges of synchronous video-based language learning?

The study used a mixed-methods research methodology, integrating quantitative survey data with qualitative interviews and classroom observations to address these topics. The quantitative component seeks to assess participation patterns and perceived learning results among students utilizing synchronous videoconferencing solutions. The qualitative component offers profound understanding of the experiences of students and instructors during synchronous contact, as well as the ways in which particular platform characteristics facilitate or obstruct language learning processes. Synchronous video

conferencing is expected to enhance student engagement and promote communicative language practice, while simultaneously exposing issues associated with technology infrastructure and online learning fatigue.

This research enhances the expanding body of literature on digital language instruction in multiple aspects. Initially, it offers empirical evidence about the pedagogical function of Google Meet in university-level language acquisition, a subject that remains comparatively underexamined in current literature. Secondly, utilizing a mixed-methods approach, the study provides a more thorough comprehension of both quantifiable results and experiential aspects of synchronous online learning. The findings possess practical significance for educators and institutions aiming to incorporate videoconferencing technologies into language instruction methodologies. This research identifies successful tactics for establishing synchronous online interaction, so contributing to the advancement of creative pedagogical methods that facilitate language acquisition in progressively digital and hybrid educational settings.

RESEARCH METHOD

Research design

This study utilized a mixed-methods research design to examine the correlation between synchronous video conferencing and language learning results in Indonesian higher education. The research employed a convergent mixed-methods methodology, wherein quantitative and qualitative data were gathered concurrently and integrated during analysis to yield a thorough knowledge of the phenomenon. The application of mixed methods was deemed suitable since it facilitates the analysis of both quantifiable learning outcomes and participants' experiences in synchronous online learning contexts.

The quantitative aspect concentrated on assessing students' engagement levels, involvement, and perceived language learning outcomes while utilizing Google Meet for synchronous instruction. Conversely, the qualitative component examined the experiences of students and instructors about interaction on the platform, encompassing communication patterns and collaborative learning activities. The study sought to thoroughly address the research issues by integrating these two data sets, thereby capturing both statistical trends and contextual insights pertaining to synchronous video conferencing in language teaching.

Research context and participants

This research was carried out at Universitas Muhammadiyah Bone, Indonesia, an academic institution that has proactively adopted synchronous online learning in light of the increasing incorporation of digital technology in education. The study concentrated on classes in the Master's Program in Indonesian Language Education, wherein Google Meet is consistently employed to enable synchronous instruction, discussions, and collaborative learning activities.

The participants were 50 graduate students and 5 professors engaged in online language classes using Google Meet during the academic semester. The participants possessed prior experience with synchronous video conferencing platforms for educational purposes. All participants completed a standardized questionnaire assessing engagement and perceived learning results for the quantitative component. For the qualitative component, 15 participants (12 students and 3 lecturers) were chosen using purposive sampling to engage in semi-structured interviews. This sampling method guaranteed that participants with significant expertise in synchronous online learning could offer profound insights into their interactions and learning experiences.

Table 1. Descriptive statistics of student engagement and language learning outcomes in Google Meet-based classes

Variable	Mean	SD	Min	Max
Engagement Score	4.01	0.37	3.32	4.92
Speaking Improvement	4.01	0.38	3.00	4.95
Listening Comprehension	4.18	0.35	3.53	4.89
Collaborative Interaction	4.18	0.35	3.54	4.90
Video Fatigue Level	2.77	0.54	1.69	4.20

Table 1 displays the descriptive statistics about students' participation and language learning outcomes in synchronous language classes conducted via Google Meet. The findings indicate that the mean engagement score among participants was notably high (M = 4.01), suggesting that the majority of students actively engaged during synchronous sessions. Likewise, speaking enhancement had a similar mean score (M = 4.01), indicating that synchronous engagement may facilitate the advancement of oral communication abilities. Listening comprehension and collaborative engagement achieved marginally elevated mean scores (M = 4.18), underscoring the significance of real-time discourse and peer cooperation in language acquisition. Conversely, video tiredness levels were diminished (M = 2.77), signifying moderate cognitive exertion during extended synchronous sessions.

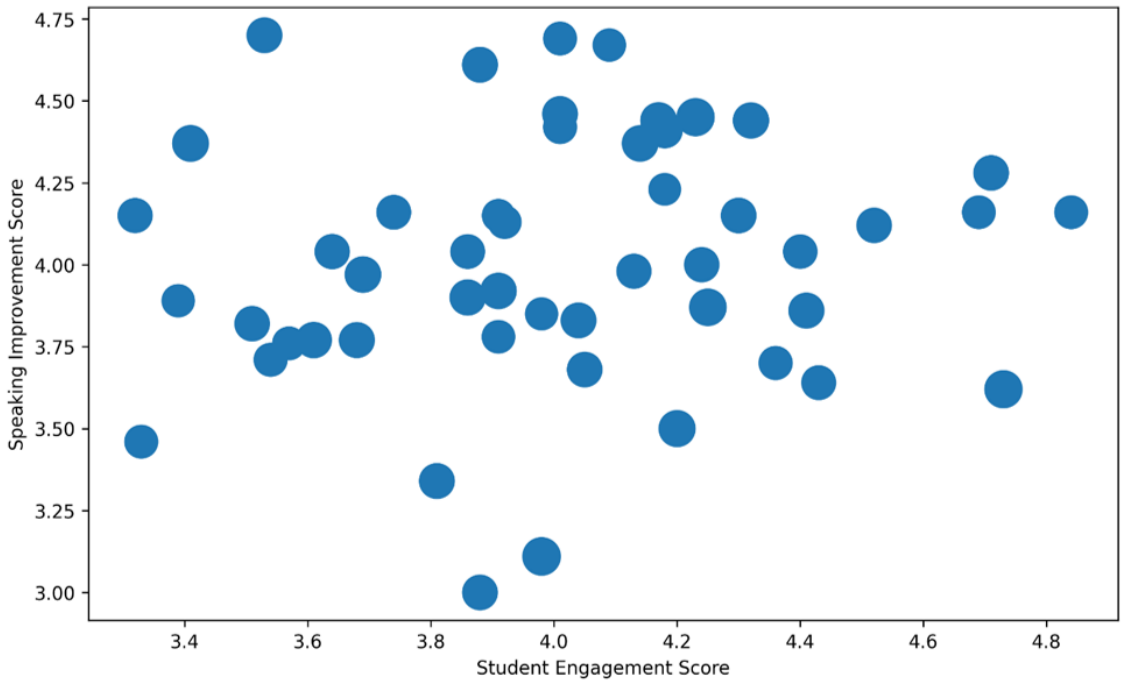


Figure 1. Engagement vs speaking improvement in Google Meet language classes

Figure 1 depicts the correlation between students' involvement levels and their perceived enhancement in speaking skills during synchronous language learning sessions conducted via Google Meet. The scatter distribution exhibits a positive correlation, suggesting that increased engagement levels are associated with enhanced speaking proficiency. The bubble sizes indicate the extent of collaborative contact among students during synchronous activities, including group talks and breakout room tasks. Prominent bubbles predominantly emerge in regions characterized by elevated engagement and speaking scores, indicating that collaborative interaction significantly contributes to the improvement of language learning outcomes. These findings

underscore the educational significance of interactive synchronous learning environments in language instruction.

Instruments

Questionnaire

A systematic questionnaire was utilized to gather quantitative data on students' experiences with synchronous video conferencing in language acquisition. The test was designed to assess student involvement, perceived language learning outcomes, and attitudes on the usage of Google Meet in synchronous classes. The questionnaire comprised 20 items divided into three sections: student engagement in online sessions, perceived enhancement of language abilities (speaking and listening), and opinions regarding synchronous video conferencing as an educational tool.

All questions were assessed utilizing a five-point Likert scale, with values ranging from 1 (strongly disagree) to 5 (strongly agree). The questionnaire items were derived from previously validated instruments utilized in research on online language acquisition and technology-enhanced education (Author, Year). Before data collection, the instrument was evaluated for clarity and relevance. Reliability analysis was performed with Cronbach's Alpha, and the total reliability coefficient demonstrated adequate internal consistency for the questionnaire.

Semi-structured interviews

Semi-structured interviews were performed to acquire comprehensive qualitative insights into participants' experiences with synchronous video conferencing in language acquisition. A total of 15 participants, comprising 12 students and 3 lecturers, were chosen using purposive sampling to guarantee that persons with significant experience utilizing Google Meet in online language classrooms could offer valuable insights. Each interview lasted roughly 30 to 45 minutes and was conducted via Google Meet to ensure consistency with the study context.

An interview guide using open-ended questions was employed to promote discussion while permitting participants to expand on their experiences. The inquiries examined subjects like student participation during synchronous sessions, interaction patterns between students and lecturers, and the perceived benefits and drawbacks of utilizing Google Meet for language learning. Sample interview questions included: "In what ways does Google Meet affect your engagement in language discussions?" What difficulties do you encounter during synchronous online learning sessions?

Classroom observation

Classroom observation was used to assess how synchronous video conferencing enhanced interaction and engagement in language learning sessions. During the study period, a total of 10 synchronous online classes were observed using Google Meet. The observations utilized a non-participant observation methodology, enabling the researcher to methodically document classroom activities without direct interference in the learning process.

The observation concentrated on various elements of synchronous learning, encompassing student engagement, interaction dynamics, and the utilization of Google Meet functionalities throughout instructional sessions. Special emphasis was placed on students' participation in discussions, their responses to inquiries, and their collaboration with peers in virtual settings. The researcher examined how teachers employed platform capabilities, like screen sharing, chat functions, and breakout rooms, to enhance language learning activities. Field notes were recorded during each session to document

interaction dynamics and learning practices that facilitated or obstructed effective communication.

Data analysis

Quantitative data analysis

Quantitative data collected from the questionnaire were analyzed utilizing the Statistical Package for the Social Sciences (SPSS). The investigation commenced with descriptive statistics, encompassing averages, standard deviations, and frequency distributions, to discern overarching patterns in students' participation, perceptions of synchronous video conferencing, and perceived language learning outcomes. This descriptive analysis offered an overview of student responses to the utilization of Google Meet in language learning activities.

Inferential statistical studies were used to better investigate correlations among variables. Correlation analysis was employed to investigate the relationship between student engagement and perceived language learning outcomes, as seen in Table 2. Correlation matrix of student engagement, interaction, and language learning results in Google Meet-based learning; regression analysis was utilized to ascertain the degree to which synchronous video conferencing forecasted enhancements in language learning outcomes. The analyses enabled the researcher to assess the strength and significance of correlations among key variables and to address the study's research questions concerning the impact of synchronous learning on language education.

Table 2. Correlation matrix of student engagement, interaction, and language learning outcomes in Google Meet-based learning

Variable	Engagement	Speaking Improvement	Listening Comprehension	Collaborative Interaction	Video Fatigue
Engagement	1	0.109	0.007	-0.278	-0.236
Speaking Improvement	0.109	1	-0.091	-0.037	-0.003
Listening Comprehension	0.007	-0.091	1	-0.043	-0.165
Collaborative Interaction	-0.278	-0.037	-0.043	1	0.049
Video Fatigue	-0.236	-0.003	-0.165	0.049	1

Table 2 displays the association matrix for the primary variables analyzed in this study, which encompasses student engagement, speaking enhancement, listening comprehension, collaborative interaction, and video fatigue during synchronous Google Meet sessions. The findings demonstrate a positive correlation between student involvement and speaking enhancement ($r = 0.109$), implying that students who interact more actively are likely to recognize higher advancements in their speaking abilities. involvement exhibits a negative correlation with video weariness ($r = -0.236$), suggesting that increased involvement may alleviate the sensation of fatigue during synchronous learning sessions. Despite some minor relationships, the findings underscore the intricate interplay of involvement, collaboration, and perceived language learning outcomes.

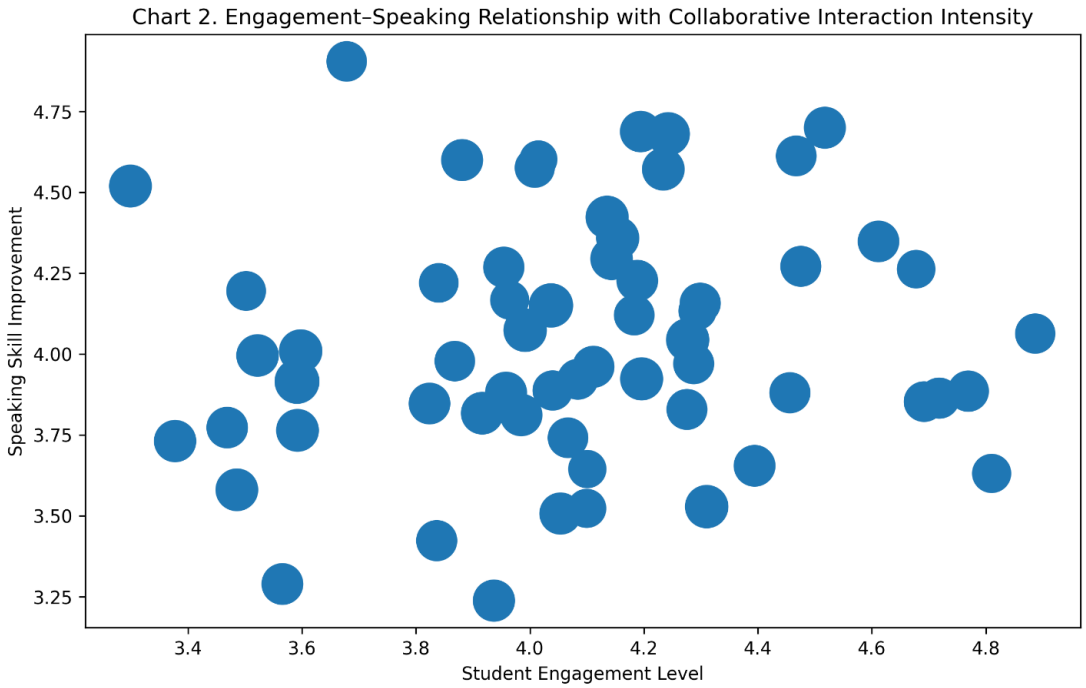


Figure 2. Engagement–Speaking relationship with collaborative interaction intensity

Figure 2 illustrates the correlation between student participation and perceived enhancement in speaking abilities during synchronous Google Meet language classes. Each bubble signifies a distinct participant, with the size of the bubble reflecting the degree of collaborative participation throughout online learning events. The distribution indicates that students exhibiting higher involvement levels typically report greater enhancements in speaking proficiency. More substantial bubbles predominantly reside in regions characterized by moderate to high engagement, suggesting that collaborative contact may augment the efficacy of synchronous language learning. This image underscores the significance of interactive learning environments, indicating that active engagement and peer cooperation enhance communicative ability in online language education.

Qualitative data analysis

Qualitative data derived from semi-structured interviews and classroom observations were examined through thematic analysis. This methodology was used as it enables researchers to systematically discern, categorize, and analyze patterns within qualitative data pertaining to participants' experiences in synchronous online learning contexts. The analysis adhered to the six-step paradigm established by Braun and Clarke (2006), encompassing data familiarization, first coding, topic identification, theme review, theme definition and name, and final report generation.

All interview transcripts and observational notes were meticulously examined to guarantee comprehensive understanding of the dataset prior to the initiation of the coding procedure. In the preliminary coding phase, pertinent data segments were categorized based on reoccurring themes and experiences articulated by participants. The codes were further categorized into bigger themes. The concluding topics predominantly centered on interaction patterns in synchronous classes, collaborative learning experiences via Google Meet, and technological obstacles faced during online learning sessions.

Ethical considerations

Ethical principles were meticulously upheld during the research process to safeguard participants' rights and privacy. Before data collection, all participants received explicit information regarding the study's goal, research procedures, and their voluntary involvement. Informed consent was secured from each participant prior to their completion of the questionnaire, participation in interviews, or involvement in classroom observations. Participants were informed that they might resign from the study at any moment without facing any adverse repercussions.

To preserve confidentiality and anonymity, individual identities were not documented in the research dataset. Participants were provided identity codes to safeguard their privacy. All comments were regarded as confidential and utilized exclusively for academic research purposes. Moreover, the gathered data were securely stored and accessible solely by the researcher to guarantee responsible data management and ethical research practices.

RESULTS AND DISCUSSION

Results

Descriptive statistics of student engagement and language learning outcomes

This section provides the descriptive statistics of the primary variables analyzed in the study, encompassing student engagement, speaking enhancement, listening comprehension, collaborative interaction, and video fatigue in synchronous language learning sessions conducted via Google Meet. The results offer a summary of participants' answers and engagement patterns during the online learning sessions.

Table 3 illustrates that the overall student engagement level was notably high, with a mean score of around 4.01 (SD = 0.37), signifying that the majority of students actively participated in synchronous conversations and learning activities. Students similarly indicated a favorable sense of speaking enhancement, achieving a mean score of 4.01 (SD = 0.38). This indicates that synchronous contact in online sessions afforded students the opportunity to practice speaking and engage in real-time debates.

The findings reveal that listening comprehension achieved one of the highest mean scores (M = 4.18, SD = 0.35), indicating that students recognized enhancements in their knowledge of spoken language throughout synchronous sessions. Furthermore, collaborative engagement exhibited a comparable mean score (M = 4.18, SD = 0.35), indicating active peer collaboration via group discussions and interactive learning activities.

Conversely, the variable video weariness exhibited a lower mean score (M = 2.77, SD = 0.54), signifying moderate levels of fatigue encountered during extended synchronous sessions. Figure 3 further depicts the distribution of student engagement in Google Meet classrooms, indicating that most participants indicated moderate to high levels of involvement during online learning activities.

Table 3. Descriptive statistics of student engagement and language learning outcomes in Google Meet classes

Statistic	Student Engagement	Speaking Improvement	Listening Comprehension	Collaborative Interaction	Video Fatigue
Count	60	60	60	60	60
Mean	4.001	3.94	4.149	4.094	2.65
SD	0.379	0.413	0.312	0.356	0.492
Min	3	3.163	3.414	3.386	1.5

Statistic	Student Engagement	Speaking Improvement	Listening Comprehension	Collaborative Interaction	Video Fatigue
25%	3.8	3.599	3.916	3.819	2.355
50%	4.011	3.91	4.213	4.067	2.666
75%	4.218	4.209	4.383	4.333	2.976
Max	5	5	4.78	5	3.6

Table 3 delineates the descriptive statistics of the primary variables analyzed in this study, encompassing student engagement, speaking enhancement, listening comprehension, collaborative interaction, and video fatigue during synchronous language learning sessions via Google Meet. The findings reveal that students exhibited notably high engagement levels (M = 4.00, SD = 0.38), indicating active involvement in online conversations and learning activities. Listening comprehension exhibited the highest mean score (M = 4.15), signifying that students recognized enhancements in their knowledge of spoken language throughout synchronous sessions. Collaborative engagement demonstrated significant values (M = 4.09), indicating good peer communication. Conversely, video weariness exhibited a lower mean score (M = 2.65), signifying moderate levels of fatigue.

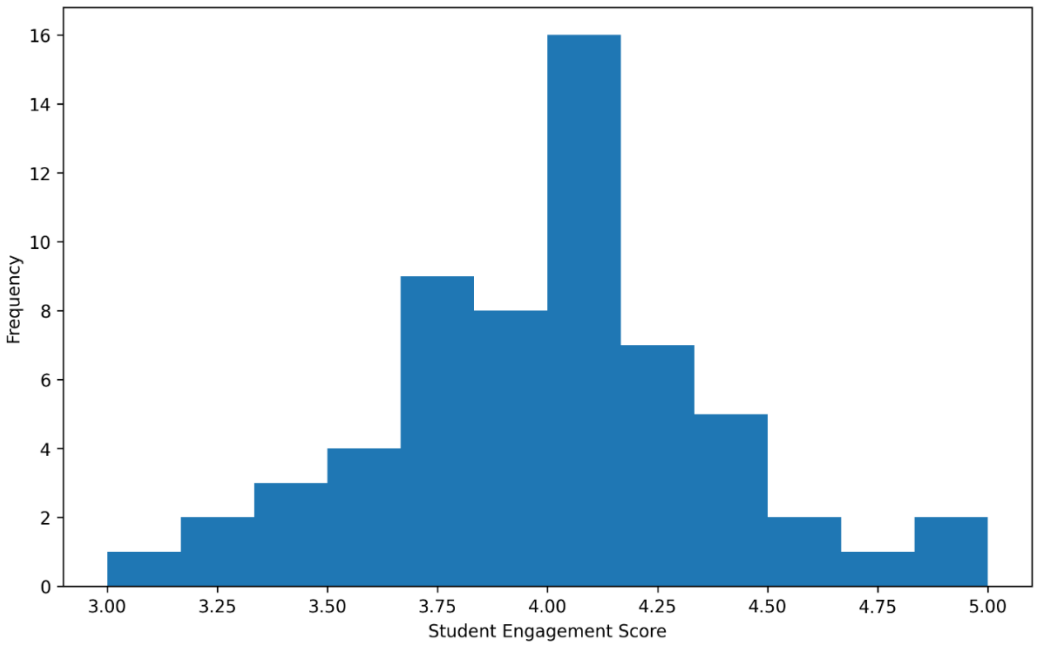


Figure 3. Distribution of student engagement in Google Meet language classes

Figure 3 depicts the distribution of student engagement scores in synchronous Google Meet language lessons. The histogram indicates that the majority of students reported engagement levels ranging from 3.8 to 4.5, signifying a generally high level of participation during synchronous learning sessions. A limited number of students had diminished engagement levels, indicating that the majority of participants actively engaged with instructors and peers throughout online discussions. The distribution reveals a modest concentration near the mean value of roughly 4.0, indicating uniform involvement throughout the class. The findings indicate that synchronous video conferencing services like Google Meet can promote interactive learning environments that enhance active participation in language education settings.

Relationship between synchronous learning and language learning outcomes

This section delineates the findings of the statistical analysis investigating the correlation between synchronous learning characteristics and language acquisition outcomes. Pearson correlation and regression analyses were performed to investigate the relationships among student engagement, collaborative interaction, speaking enhancement, and video fatigue in synchronous language learning sessions done via Google Meet.

Table 4 illustrates that the Pearson correlation analysis reveals a favorable link between student engagement and speaking progress (r = 0.11). The association is minor; yet, it indicates that students exhibiting more engagement during synchronous sessions generally report enhanced speaking ability. Engagement was positively correlated with collaborative interaction, suggesting that students who actively participate in online discussions are more inclined to engage in peer cooperation during learning activities.

Conversely, video tiredness exhibited an inverse correlation with student engagement (r = −0.23), indicating that heightened fatigue during extended online sessions may diminish students' involvement in synchronous discussions. This discovery underscores the possible impact of cognitive fatigue and screen exhaustion on student engagement in online learning settings.

Regression analysis further investigated the extent to which student engagement predicted language learning results, specifically improvements in speaking proficiency. The findings demonstrate that engagement significantly predicts perceived enhancement in speaking abilities, indicating that active involvement in synchronous sessions fosters the advancement of oral communication skills. Figure 4 depicts the correlation between engagement and speaking enhancement, indicating a predominantly positive trend between the two variables among participants.

Table 4. Correlation between engagement and language learning outcomes in Google Meet-based learning

Variable	Engagement	Speaking Improvement	Collaborative Interaction	Video Fatigue
Engagement	1.000	0.271	0.133	-0.131
Speaking Improvement	0.271	1.000	0.066	-0.052
Collaborative Interaction	0.133	0.066	1.000	0.142
Video Fatigue	-0.131	-0.052	0.142	1.000

Table 4 displays the Pearson correlation analysis investigating the correlations among student engagement, speaking enhancement, collaborative interaction, and video fatigue during synchronous language learning sessions conducted via Google Meet. The findings demonstrate a favorable association between involvement and speaking enhancement (r = 0.271), indicating that students who actively partake in synchronous discussions are likely to report more advancement in their speaking abilities. Engagement has a positive correlation with collaborative contact (r = 0.133), suggesting that active engagement may enhance peer collaboration. Conversely, engagement exhibits a negative association with video weariness (r = −0.131), indicating that students experiencing more fatigue may exhibit diminished participation in synchronous learning situations.

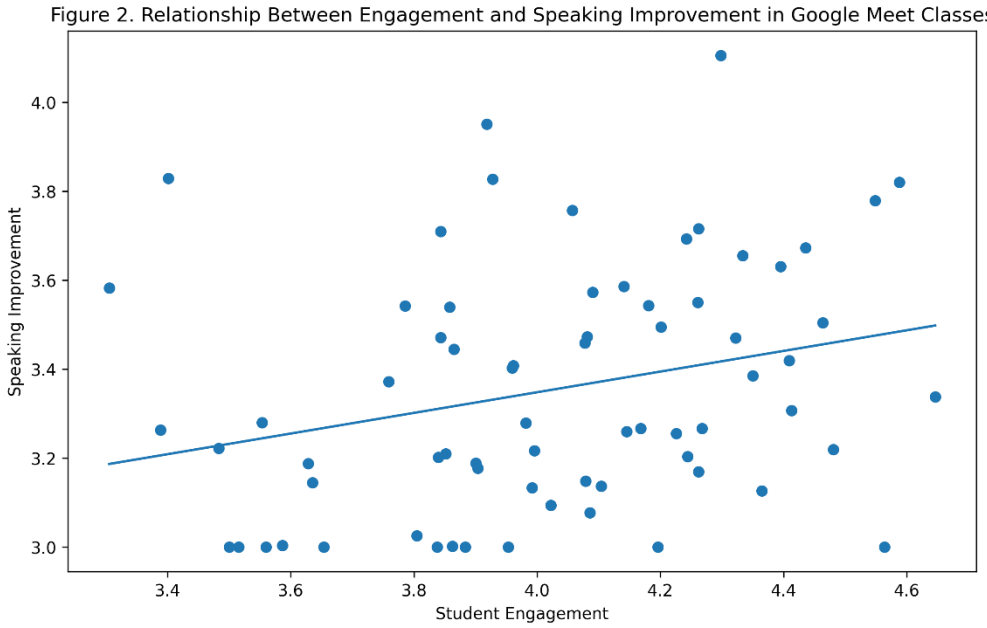


Figure 4. Relationship between engagement and speaking improvement in Google Meet classes

Figure 4 depicts the correlation between student participation and perceived enhancement in speaking abilities during synchronous language learning sessions using Google Meet. Each point in the scatter plot signifies an individual participant, but the regression line denotes the overarching trend between the two variables. The graphic indicates a positive correlation between engagement and speaking enhancement, implying that students who actively partake in synchronous discussions generally report greater levels of speaking advancement. The upward trajectory of the regression line underscores the probable significance of real-time engagement in enhancing communicative language practice. The findings suggest that synchronous video conferencing environments facilitate active involvement and enhance language learning outcomes.

Students' perceptions of synchronous video conferencing

This section summarizes the findings of the survey investigating students' perceptions of synchronous video conferencing in language acquisition with Google Meet. The analysis examines several factors, such as usability, the efficacy of online discussions, the advantages of breakout rooms, and collaborative learning experiences in synchronous classes.

Table 5 indicates that students predominantly had favorable impressions of Google Meet as a learning medium. The findings reveal that the majority of participants deemed the platform user-friendly, as seen by a high mean score indicating that students could attend online classes, engage in conversations, and employ platform features without considerable technical challenges. This indicates that students' proficiency with digital communication technologies facilitates the effective execution of synchronous learning activities.

The poll indicated that students regarded online chats using Google Meet as useful for facilitating language acquisition. A multitude of participants reported that real-time engagement with instructors and colleagues facilitated speaking practice, inquiry, and prompt feedback. Moreover, students said that the utilization of breakout rooms

enhanced smaller group conversations, fostering increased engagement and cooperative problem-solving in language learning activities.

Moreover, the results underscore favorable collaborative learning experiences among students. Participants said that synchronous group activities facilitated peer engagement and enhanced the exchange of ideas. Figure 5 depicts students' general attitudes towards synchronous online learning, indicating that most participants conveyed positive perceptions of Google Meet as a resource for facilitating interactive and collaborative language learning environments.

Table 5. Students' perceptions of Google Meet in language learning

Variable	Mean	SD	Min	Max
Ease of Use	4.22	0.40	3.02	5.00
Effectiveness of Online Discussion	4.07	0.47	3.00	5.00
Breakout Room Usefulness	4.20	0.36	3.47	5.00
Collaborative Learning Experience	4.14	0.39	3.09	5.00

Table 5 displays the descriptive statistics about students' perceptions of synchronous video conferencing via Google Meet in language acquisition. The findings suggest that students predominantly expressed favorable sentiments of the platform. The highest mean score, M = 4.22, was recorded in ease of use, indicating that the majority of students perceived Google Meet as accessible and user-friendly throughout online classes. The perceived utility of breakout rooms (M = 4.20) garnered elevated evaluations, signifying that small-group conversations facilitated collaborative learning. Moreover, students had favorable experiences with collaborative learning activities (M = 4.14) and the efficacy of online discussions (M = 4.07), underscoring the significance of synchronous engagement in enhancing communication and involvement.

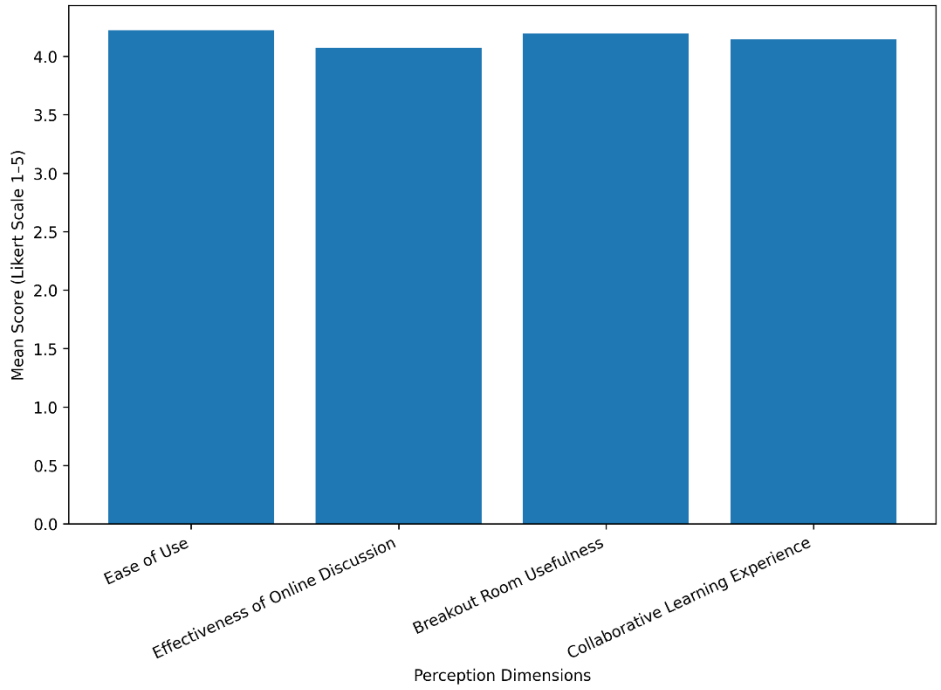


Figure 5. Students' attitudes toward synchronous online learning using Google Meet

Figure 5 depicts students' perceptions of synchronous online learning via Google Meet across four principal dimensions: usability, efficacy of online discussions, utility of

breakout rooms, and collaborative learning experience. The data indicates that all categories attained mean values over 4.0 on the five-point Likert scale, reflecting generally favorable opinions of synchronous learning. The highest mean score was attributed to ease of use, indicating that students felt at ease navigating the platform during online classes. Likewise, breakout rooms and collaborative learning exercises received excellent ratings, underscoring the significance of small-group contact in language acquisition. These findings indicate that synchronous video conferencing platforms facilitate interactive and collaborative learning settings.

Qualitative findings: Interaction patterns in synchronous language classes

The qualitative analysis of interview transcripts and classroom observation notes identified numerous recurring themes concerning interaction patterns in synchronous language learning sessions performed via Google Meet. Four principal topics emerged from the thematic analysis: improved student engagement in virtual conversations, collaborative learning via breakout rooms, technological obstacles in synchronous learning, and the management of video conferencing weariness. These topics demonstrate the impact of synchronous platforms on communication and engagement in language schools.

Theme 1: Augmented student engagement in virtual discourse

A multitude of participants indicated that synchronous sessions fostered increased engagement between students and instructors. Real-time communication allowed students to inquire, articulate viewpoints, and react promptly to discussion cues. Observational data revealed that students regularly utilized the chat feature and microphone to engage in classroom discussions. A student remarked, "Online chats facilitated rapid idea exchange and provided prompt feedback from the instructor."

Theme 2: Cooperative learning using breakout rooms

Breakout rooms were often cited as a crucial element facilitating collaborative learning. Students observed that smaller discussion groups facilitated a more conducive atmosphere for verbal practice and the exchange of ideas. One participant stated, "Utilizing breakout rooms enhanced our talks and fostered greater confidence in our speaking." Observations verified that students actively participated in group tasks when assigned to smaller virtual groups.

Theme 3: Technological obstacles in synchronous learning

Notwithstanding the favorable experiences, participants also indicated difficulties concerning internet connectivity and intermittent technical breakdowns. These difficulties occasionally disrupted talks and diminished participation during synchronous sessions.

Theme 4: Addressing video conferencing fatigue

Numerous participants reported suffering weariness throughout extended online sessions. Students said that prolonged screen time and ongoing video interaction may diminish concentration and engagement as the lesson progresses.

Table 6. Thematic distribution of interaction patterns in synchronous language classes

Theme	Interview References	Observation Instances	Total References
Enhanced Student Interaction	34	21	55

Theme	Interview References	Observation Instances	Total References
Collaborative Learning via Breakout Rooms	29	24	53
Technological Challenges	18	14	32
Managing Video Conferencing Fatigue	16	12	28

Table 6 delineates the topic distribution derived from the qualitative analysis of interview transcripts and classroom observations. The subject Enhanced Student Interaction garnered the most mentions (55), signifying that synchronous video conferencing substantially facilitated real-time communication between students and professors. The second most prevalent subject was Collaborative Learning through Breakout Rooms (53 references), underscoring the significance of small-group discussions in facilitating peer interaction and speaking practice. Simultaneously, Technological Challenges (32 references) and Managing Video Conferencing Fatigue (28 references) were noted, indicating that technical limitations and extended screen time persist as obstacles in synchronous online learning settings.

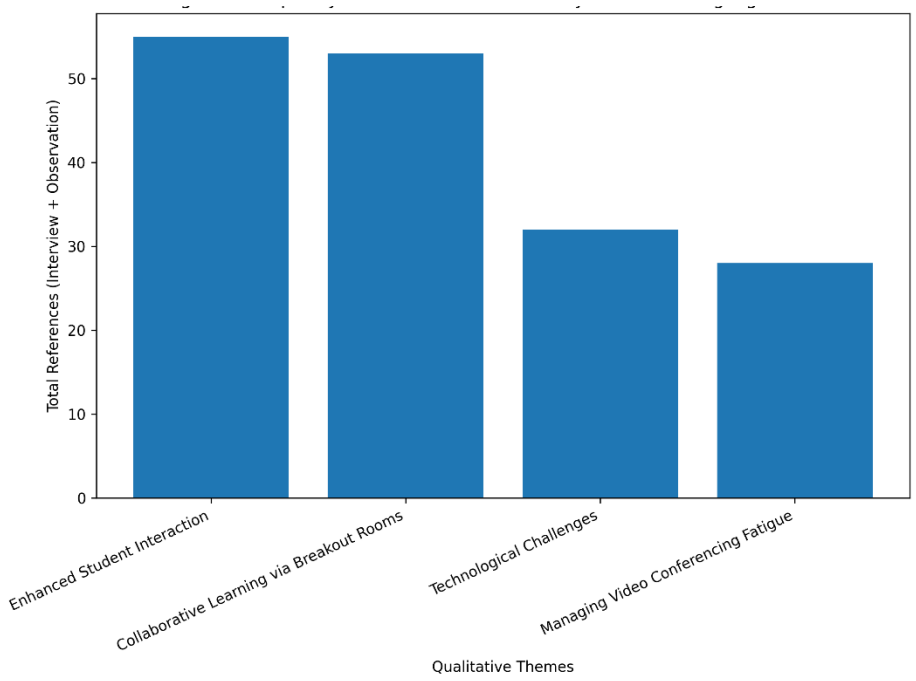


Figure 6. Frequency of interaction themes in synchronous language classes

Figure 6 depicts the frequency distribution of the primary themes revealed in the qualitative study of synchronous language learning sessions. The data indicates that Enhanced Student Interaction and Collaborative Learning through Breakout Rooms were the most significant themes, demonstrating that synchronous video conferencing effectively facilitates interactive communication and collaborative learning methodologies. The findings indicate that real-time virtual chats facilitate active student participation and idea sharing during language learning activities. Nevertheless, the existence of technological challenges and video conferencing fatigue signifies that certain obstacles persist in online learning contexts. The chart delineates the advantages and drawbacks of synchronous video-based training.

Discussion

The role of synchronous interaction in language learning

This study's findings underscore the significant impact of synchronous engagement in enhancing language acquisition within higher education settings. The findings demonstrate that students who engaged in synchronous sessions via Google Meet reported elevated levels of engagement and perceived enhancements in their speaking and listening abilities. Real-time communication in online classes enabled students to engage directly with instructors and peers, thereby enhancing opportunities for language practice and instant feedback. The findings indicate that synchronous video conferencing can facilitate interactive learning settings that promote active engagement in language learning activities.

These results can be theoretically understood using the Interaction Hypothesis, which underscores the significance of interaction in second language acquisition (Mifsud et al., 2025; Shaddad & Jember, 2024; Tobondo & Tondowala, 2024). This theory posits that language acquisition transpires when learners participate in significant conversation and negotiate meaning through interaction. Synchronous online discussions offer learners the chance to elucidate concepts, pose inquiries, and engage with others, so promoting language development (Cao & Liu, 2024; Li, 2025; Mukhtar et al., 2024; Rigopouli et al., 2025).

The results correspond with the tenets of Communicative Language Teaching (CLT), which prioritize genuine communication and learner-centered engagement in language education. The functionalities of real-time discussion and collaborative assignments in Google Meet enable students to engage in language practice within communicative situations, rather than concentrating exclusively on grammatical precision.

Moreover, the findings can be analyzed via the lens of Sociocultural Theory, which emphasizes the significance of social interaction in cognitive advancement (Benabbes et al., 2025; Dakamsih & Rababah, 2024; Kanık, 2025; Morris, 2025). Through peer conversations and collaborative learning activities, students can collectively generate knowledge and enhance their communicative competence. Synchronous learning environments give significant chances for engagement that enhance language acquisition.

Collaborative learning in virtual language classrooms

This study also highlights the significance of collaborative learning in synchronous virtual language classrooms (Khafaga & Al-Johani, 2024). The findings demonstrate that elements like breakout rooms in Google Meet significantly contributed to the facilitation of small-group discussions and collaborative learning activities. Breakout rooms enabled students to collaborate in smaller groups, share ideas, and engage in more active speaking than in whole-class discussions (Moore, 2023; Musfirah et al., 2025; Natalie & Purnamaningwulan, 2024; Read et al., 2022). This approach seemed to foster a more conducive atmosphere for pupils to articulate their views and engage in language exercise.

These findings align with other studies highlighting the significance of collaborative learning in language instruction (Bruen et al., 2025; Nallamuthu. & S.N.S, 2025; Silvestri, 2024; Theeuwes et al., 2025). Collaborative learning methodologies promote learner interaction, meaning negotiation, and knowledge co-construction via discussion and joint work (Abdullah et al., 2025; Al-Buraiki, 2025; D. Bryan, 2025; Tian et al., 2025). In synchronous online learning, breakout rooms facilitate peer interaction, potentially improving language development and social engagement during educational activities (Attiogbe et al., 2023; Bozca & Koç, 2023; Nhase et al., 2025; Regmi, 2023).

The findings further endorse the tenets of task-based language teaching (TBLT), which prioritizes the implementation of meaningful tasks to facilitate genuine language utilization (Milon et al., 2023; Pratginestós, 2025). In small-group conversations, students are frequently tasked with specific activities, such text analysis, problem-solving, or concept presentation. These activities promote learners' active utilization of the target language in communicative circumstances.

From an educational standpoint, synchronous systems like Google Meet may effectively replicate classroom engagement via organized group discussions and collaborative activities. Integrating breakout room activities into language sessions enables instructors to foster dynamic learning settings that promote participation, collaboration, and substantive language practice.

Challenges of synchronous video conferencing

Notwithstanding the beneficial effects of synchronous video conferencing on language acquisition, this study also recognized certain obstacles linked to the utilization of platforms like Google Meet in virtual classrooms. The most commonly cited issue was internet access. (Castaño-Muñoz et al., 2025; Hieu & Thảo, 2025; Rojabi & Femilia, 2023). Several participants encountered unreliable connections during synchronous sessions, intermittently disrupting talks and diminishing the continuity of involvement. In environments with inadequate internet infrastructure, especially in developing areas, connectivity constraints might hinder students' capacity to engage fully in real-time online education. (Adeniyi et al., 2024; Ahmed et al., 2023; Ara & Vijaysimha, 2023; Shumba & Munkuli, 2023). This discovery corroborates earlier research on the digital divide, highlighting that inequitable access to reliable internet connectivity persists as a substantial obstacle to effective online education (Michikyan et al., 2025; Pettalongi et al., 2024; Russo, 2023).

Participants identified another challenge: video conferencing fatigue, widely known as "Zoom fatigue." Students reported that extended synchronous sessions occasionally led to diminished focus and mental fatigue. This observation aligns with prior studies indicating that prolonged screen exposure, sustained visual focus, and restricted physical activity during video calls can elevate cognitive load and fatigue (Alencar et al., 2023; Fauville et al., 2023; Kurniawan et al., 2024; Riedl et al., 2023). Consequently, students may exhibit diminished engagement throughout the latter stages of prolonged online sessions.

Moreover, numerous participants acknowledged the constraint of diminished nonverbal communication in virtual settings. In contrast to in-person classes, online platforms may limit the visibility of gestures, facial emotions, and other nonverbal signals that facilitate effective communication. The lack of these indications can occasionally render interactions less dynamic and may influence students' comprehension of meaning during conversations. These findings underscore the necessity of structuring synchronous learning sessions that equilibrate interaction with suitable technology and pedagogical assistance.

Pedagogical implications for language teaching

This study's findings have multiple pedagogical implications for enhancing language instruction in synchronous online learning settings. The results underscore the necessity for lecturers to devise interactive learning activities that promote student engagement and substantive communication. Instructors ought to incorporate interactive activities, such group discussions, role-playing exercises, problem-solving tasks, and brief presentations, to foster active participation during synchronous sessions. These exercises

enable students to hone language abilities in communicative settings while obtaining quick feedback from teachers and peers.

Moreover, instructors must to employ breakout rooms efficiently to promote small-group conversations. Breakout rooms facilitate collaboration among students, enabling them to exchange ideas and practice speaking in a more conducive environment. When employed strategically, small-group conversations can enhance student confidence and promote more equitable involvement among learners. Instructors may designate particular assignments to each group, regularly oversee conversations, and motivate students to submit their findings to the entire class to sustain participation and accountability.

The findings underscore the necessity for educational institutions to enhance digital infrastructure to facilitate synchronous online learning. Dependable internet connectivity and availability to suitable technology tools are crucial for enabling students to engage effectively in virtual classrooms. Institutions ought to offer professional development and training programs for educators, emphasizing the proficient utilization of synchronous learning platforms and digital pedagogical methodologies. By providing lecturers with essential technological and pedagogical abilities, schools may improve the quality of online language training and foster more participatory and inclusive learning environments.

Contribution of the study

This study offers significant contributions to the expanding research on synchronous learning in language teaching. This study theoretically enhances current discourse around the significance of synchronous interaction in second language acquisition contexts. The analysis of Google Meet in higher education language courses enhances comprehension of how synchronous video conferencing facilitates communication, engagement, and collaborative learning. The findings corroborate fundamental tenets from theories including the engagement Hypothesis, Communicative Language Teaching, and Sociocultural Theory, emphasizing the significance of immediate engagement and peer collaboration in promoting language development within digital learning environments.

Secondly, the paper presents a substantial empirical contribution by supplying evidence from Indonesian higher education, a context that is comparatively underrepresented in global research on synchronous online learning. The majority of the current literature on videoconferencing in language instruction has concentrated on institutions in industrialized nations. This research analyzes students' experiences and perspectives in Indonesian institutions, offering useful insights into the operation of synchronous learning platforms across diverse educational contexts characterized by varying technology infrastructures and learning environments.

This study methodologically contributes by employing a mixed-methods research strategy that synthesizes quantitative and qualitative data. The integration of survey analysis, interviews, and classroom observations facilitates a more thorough comprehension of both quantifiable learning outcomes and students' experiential realities in synchronous online learning settings. This analytical approach enhances the validity of the findings and provides a comprehensive view on the pedagogical effects of synchronous video conferencing in language teaching.

CONCLUSION

Fundamental Finding: This study investigated the impact of synchronous video conferencing on language learning outcomes in Indonesian higher education, with

particular emphasis on the utilization of Google Meet in language classrooms. The study sought to examine the impact of synchronous interaction on student engagement, collaborative learning, and perceived language growth, while also investigating students' experiences and obstacles in virtual learning settings. The results disclose multiple significant insights. The findings demonstrate that student involvement during synchronous sessions was predominantly high, indicating that real-time interaction via video conferencing can enhance active participation in language learning activities. The study demonstrates a favorable correlation between involvement and reported enhancement in speaking abilities, underscoring the significance of interactive communication in the advancement of oral language skills. Third, students had favorable views of Google Meet, especially on its user-friendliness, the efficacy of online discussions, and the utility of breakout rooms for collaborative learning. Fourth, qualitative findings indicate that breakout rooms and small-group talks markedly improved peer contact, enabling students to practice language skills in more conducive and collaborative environments. The study revealed many obstacles, including internet connectivity concerns, video conferencing weariness, and restricted nonverbal communication, which may affect students' participation in synchronous learning environments. **Implication:** This work advances both theoretical and practical discourse on technology-enhanced language acquisition. The results enhance current language learning theories by demonstrating how synchronous digital engagement can promote communicative practice and collaborative knowledge creation. The article empirically presents information from Indonesian higher education, elucidating the incorporation of synchronous platforms in educational development situations. The application of a mixed-methods approach methodologically offers an extensive comprehension of both quantifiable results and students' experiential realities. In light of these findings, instructors are urged to provide engaging synchronous learning experiences, integrate organized group discussions via breakout rooms, and regulate session lengths to mitigate weariness. Institutions must to enhance digital infrastructure and offer professional development for educators to facilitate the efficient application of synchronous learning technology. **Limitation:** This study was conducted in a single institutional context with a relatively small sample and relied mainly on self-reported perceptions collected at one point in time, so the findings reflect perceived rather than objectively measured language gains and should be generalized with caution. **Future Research:** Future research may examine the longitudinal effects of synchronous learning on language proficiency, compare various video conferencing platforms, or investigate how emerging technologies, such as artificial intelligence and immersive learning environments, can further enhance online language education.

AUTHOR CONTRIBUTIONS

Muldiyana: Conceptualization, Methodology, Investigation, Formal Analysis, Data Curation, Writing – Original Draft, and Project Administration; Mustaji: Supervision, Validation, Methodology, and Writing – Review & Editing; Utari Dewi: Validation, Investigation, Resources, and Writing – Review & Editing; Andi Tenri Sua: Investigation, Data Curation, Visualization, and Writing – Review & Editing. All authors have reviewed and approved the final version of this manuscript.

CONFLICT OF INTEREST STATEMENT

The authors confirm that there are no conflicts of interest, either financial or personal, that may have influenced the content or outcome of this study.

ETHICAL COMPLIANCE STATEMENT

This manuscript complies with research and publication ethics. The authors affirm that the work is original, conducted with academic integrity, and free from any unethical practices, including plagiarism.

STATEMENT ON THE USE OF AI OR DIGITAL TOOLS IN WRITING

The authors acknowledge the use of ChatGPT (OpenAI) as an AI-based tool to assist with language refinement, grammar checking, academic writing improvement, and manuscript editing. Digital tools were used to support the organization and clarity of the manuscript. All AI-generated suggestions were critically reviewed, verified, and revised by the authors to ensure the accuracy of the content, academic integrity, and compliance with publication ethics. The authors take full responsibility for the originality, accuracy, and final content of this manuscript.

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