Exploring Zoom as a Platform for Language Learning: An Interactionist Approach

Nasrin Shamsipour

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By: Nasrin Shamsipour

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Signed by the final Examining Committee:

_____Examiner

Paul John

_____Thesis Supervisor

Walcir Cardoso

Approved by _____

Saul Carliner Graduate Program Director

_____

Pascale Sicotte, Dean

ABSTRACT

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Nasrin Shamsipour

Video Conferencing tools like Zoom have provided new avenues for authentic learner interaction in second language (L2) learning, supporting research that highlights the role of interaction in facilitating L2 acquisition (e.g., Putri et al., 2021; Swain, 1985). For instance, according to Long's (1996 et seq.) Interactionist Approach, it is hypothesized that learners acquire language most effectively when they engage in meaningful communication and negotiate meaning with others. Zoom aligns with this approach by providing authentic virtual interaction opportunities (Zhao & Lai, 2023).

This study draws upon Cardoso's (2022) chronological framework for examining technological tools for L2 learning. Specifically, it focuses on stage 2 of the framework, which involves assessing the pedagogical potential of an existing technology. Following Long's (1996) Interactive Approach, the study explored how Zoom's features can be leveraged to promote interactions by providing learners with access to the L2 input (e.g., listening) and promoting opportunities for output (e.g., speaking) and negotiation of meaning (e.g., to solve a communication breakdown). Our analysis suggests that most Zoom features fulfil the criteria set forth by the Interaction Approach. For instance, Breakout Rooms and Polls/Quizzes have the potential to increase student engagement and provide immediate feedback. Students can also collaborate in Video Conferencing and Chats within Breakout Rooms to engage in meaningful exchanges that drive L2 learning. Our discussion of these analyses highlights Zoom's potential as a versatile platform for language learning, offering significant benefits for both synchronous and asynchronous L2 learning.

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Chapter 1: Introduction

For many years, I have taken on the role of an English as a Second Language (ESL) instructor, a journey that has been both demanding and rewarding. At the beginning of the pandemic and with the sudden shift to staying home and teaching remotely, I realized the impact of technology on language teaching, prompting me to adopt Zoom as my primary teaching platform. My initial experiences with Zoom were cautious and experimental. Still, as I explored its features more thoroughly, I recognized its potential to transform my approach to interaction and engagement in online classrooms. With tools like Screen-Sharing, Breakout Rooms, and the smooth incorporation of multimedia resources, Zoom became an essential tool in my teaching toolbox. As time passed, my interest in its specific features increased, and I began to explore how these tools can help learners interact with each other and the instructor.

By examining the foundations of each Zoom application, I realized that this experience significantly influenced my teaching philosophy. For example, I began incorporating Breakout Rooms to encourage small group discussions, fostering more interactive and collaborative learning experiences. This move made me realize that I was inherently a "social interactionist" since I observed how meaningful communication and collaboration among learners enhanced their engagement, understanding, and ability to co-construct knowledge in ways that traditional teaching methods cannot often achieve (Vygotsky, 1978). Instead of simply using Zoom as a platform for content delivery, I focused on understanding how its design could promote the interactive exchanges that are essential for language learning. I became particularly interested in how specific features

such as Chat (e.g., for immediate written feedback), Share (e.g., for visual engagement) and Breakout Rooms (e.g., to divide learners into Breakout groups) enhanced opportunities for negotiating meaning and providing scaffolding.

My years of experience with Zoom, combined with the increasing reliance on virtual education, created the perfect opportunity to pursue my goal of analyzing Zoom's interactive functionalities through the lens of the interactionist hypothesis, highlighting the importance of meaningful interaction in the process of learning a second language (Long, 1996).

The Interactionist Approach and ESL

The interactionist approach underscores the importance of comprehensible input and output facilitated through feedback and interaction with more knowledgeable peers or instructors (Swain, 1985; Long, 1996). This process allows learners to negotiate meaning, refine their understanding, and develop language skills in a socially supported context. Sociocultural theories put forth by Vygotsky (1978) highlight this interactionist perspective, arguing that engaging socially is the most effective way to learn a language. Key components of the interactionist hypothesis, including access to comprehensible input, opportunities for output, and constructive feedback, emphasize the crucial role of communicative exchanges between students and teachers – social interactions (Swain, 1985; Long, 1996).

In sum, the interactionist hypothesis suggests that L2 learners gain the most from opportunities for meaningful interaction, especially when they are exposed to comprehensible input and can produce language with adjustments made in response to feedback (Gass & Mackey, 2006). The interactionist hypothesis also highlights the significance of learners collaborating to construct knowledge and clarify meanings, a process that is essential for the development of language proficiency.

Online Learning

While interaction in education may first recall traditional in-person classrooms, the rise of online learning, fuelled by technological advancements, has profoundly reshaped how we engage in teaching methods, particularly in language acquisition. I have adopted Video Conferencing platforms such as Zoom and Microsoft Teams as tools for delivering instructional content. These platforms provide synchronous and asynchronous learning opportunities, allowing us to break geographical barriers and connect with our students and peers more easily.

As Web Conferencing platforms became more popular, integrating these digital tools into education has significantly enhanced accessibility, offering tailored and engaging learning experiences (Al-Jarf, 2022; Naidu, 2019). This transition to online settings accelerated during the COVID-19 pandemic, as educational institutions relied on platforms like Zoom to maintain the continuity of learning. Unlike traditional face-to-face education, which is constrained by time and location, online learning through platforms such as Zoom fosters a flexible, student-centred environment. These benefits make Zoom an exciting platform for exploring its potential as a resource for L2 acquisition. By taking advantage of Zoom's features in this setting, teachers can cultivate environments that support interactive principles: promoting interaction, enabling active learning and meaningful practice, providing timely feedback, and encouraging collaboration. Studies have shown that these tools promote active learning, social interaction, and engagement in virtual learning environments, and tools such as Breakout Rooms, Screen Sharing, and Chat support these practices, aligning with the best practices in computer-assisted language learning (CALL; Egbert & Shahrokni, 2018).

Zoom in ESL teaching

A growing body of research showcases Zoom's pedagogical potential in ESL learning settings. Previous studies on Zoom and its effect on productive skills such as speaking showed that Zoom features, including Share (Screen Sharing), Breakout Rooms, and Whiteboards, have been proven to boost learner engagement, improve pronunciation accuracy, and enhance oral fluency (Dharmawati, 2022; Kohnke & Moorhouse, 2020). As previous studies indicate, the pedagogical use of Zoom promotes collaborative and multimodal learning, making it ideal for addressing diverse instructional needs. Nonetheless, there are still gaps in our understanding of how specific Zoom features align with interactionist principles, especially in fostering modified input and encouraging meaningful output, negotiation of meaning, and giving and receiving feedback. Integrating interaction-driven strategies with technology enhances the language learning experience and prepares learners for practical, real-world communication scenarios (Sato et al., 2017). Through this lens, this study explores how Zoom can transform ESL education into a collaborative, engaging, and pedagogically effective process.

This Thesis

This thesis examines Zoom's pedagogical potential through the lens of the interactionist hypothesis, focusing on its ability to enhance learning of L2 English. Utilizing Cardoso's (2022) framework for exploring technology in language education, the study emphasizes Stage 2: Exploring pedagogical affordances. Specifically, it investigates the pedagogical affordances of an already established tool (Zoom) and its ability to promote a learning environment that provides comprehensible input and encourages meaningful output, negotiation of meaning, and giving and receiving feedback. By bridging theory and practice, this research aims to provide insights for optimizing language instruction in increasingly digital classrooms.

As per the guidelines for a manuscript-based MA thesis, the next section

constitutes “a full submittable draft of a manuscript” that examines Zoom’s pedagogical potential through the lens of the interactionist hypothesis, focusing on its ability to enhance English language learning in an online environment.

Chapter 2

Introduction

In recent decades, online learning has gained prominence due to technological progress and the demand for adaptable education, leading to changes in conventional educational paradigms (Naidu, 2019). The growing ubiquity of computers and internet technologies in personal and professional lives makes it important to investigate the efficacy of online learning in aiding learners' growth. Technology-based learning tools such as Zoom, Microsoft Teams, and Artificial intelligence (AI) tutors have provided learners with tailor-made learning experiences, especially in language learning (Putri et al., 2021). Educators' use of these digital resources is key for achieving efficacy and efficiency in language learning (Chapelle, 2005; Zhao & Lai, 2023), allowing tailored teaching approaches that respond to diverse learner needs (Al-Jarf, 2022; Muñoz, 2022). This strategic utilization of digital tools became essential during the pandemic, as educational institutions (including schools and universities) relied on online learning via video conferencing tools such as Zoom and Skype to continue functioning (Massner, 2021).

While online learning is relatively new, traditional methods of teaching English as a Second Language (ESL) have long emphasized the importance of interaction and communication. Traditional methods typically involve in-person, classroom-based instruction, where interaction occurs face-to-face between teachers and students. This approach typically relies on textbooks as the primary source of information and materials for practice (Darling-Hammond et al., 2020; Fisher et al., 2021) and is confined to physical spaces such as classrooms (Hwang et al., 2022). As such, traditional classroom settings pose logistical challenges, such as requiring transportation and adherence to specific schedules, limiting accessibility for some learners and their teachers. In contrast to traditional learning, online learning offers greater flexibility and overcomes limitations

of location and time by promoting interaction among physically dispersed students.

Interaction among learners is crucial in both online and traditional learning settings. According to the interactionist approach (e.g., Loewen et al., 2018; Mackey et al., 2012; Sarem et al., 2014), social interactions are crucial for effective language acquisition (Long, 1983; Swain, 1985) and for learning in general (e.g., Vygotsky, 1978, who posited that learning is a result of social interactions and negotiation of meaning). This necessity for effective social interaction is precisely where digital tools like Zoom prove to be highly valuable. With its adaptable video conferencing features, Zoom is consistent with the interactionist theory's focus on social interaction in language acquisition (Katz & Yemini, 2021; Long, 1996). Zoom's interactive capability supports various types of computer-assisted language learning (CALL) by integrating tools such as automatic speech recognition (ASR) to provide immediate feedback, and text-to-speech synthesis (TTS) for opportunities of exposure to the L2 input (Chapelle, 2003). Zoom can facilitate an environment that promotes the provision of comprehensible input, opportunities for output practice, and interactive feedback, all essential for effective language learning (Bailey et al., 2019; Nuryanto, 2021). Furthermore, the technology offers cultural and linguistic immersion, breaking geographical barriers and fostering a global learning community (Warschauer, 1997).

This study uses an interactionist approach to explore Zoom's affordances and pedagogical potential in the L2 learning context. As such, it draws on Cardoso' (2022) chronological framework for investigating language learning with technology, which consists of four stages: (1) software/tool development, (2) technology exploration, (3) assessing suitability for learning, and (4) assessing pedagogical effectiveness. Given that Zoom is already fully developed (stage 1), this study will focus on stage 2 of Cardoso's framework to explore Zoom's affordances and pedagogical potential within an interactionist approach to L2 learning. The study highlights how Zoom can enhance

online L2 learning through synchronous and asynchronous interactions (including communication, collaboration, and feedback), incorporating interactionist principles into educational technology design. The findings provide valuable insights for educators, curriculum designers, and technology-enhanced material developers.

Background

Online and Blended L2 Learning

The integration of technology in language learning has revolutionized educational methodologies worldwide, significantly impacting how languages are taught, learned, and practiced (Iqbal et al., 2021; Kuzucu & Kartal, 2020; Li & Swanson, 2014; Pourhosein Gilakjani, 2017; Rintaningrum, 2023; Başar & Şahin, 2021). The onset of the COVID-19 pandemic accelerated its adoption in education, pushing language learning into a more digital sphere, where applications, online platforms, and virtual classrooms became the norm (Smith & Doe, 2021).

What is pedagogically interesting in this online environment is that Web Conferencing tools such as Zoom, Skype and Microsoft Teams can provide L2 learners with an engaging and interactive environment without the space constraints imposed by the walls of a classroom. This includes access to authentic materials and fluent L2 users (Richards, 2015), facilitating collaboration and thus contributing to effective language acquisition (Ernest et al., 2021). Another pedagogically interesting aspect of this environment is that it can increase student engagement through technology-aided activities such as online games and multimedia resources, making the learning process more engaging and motivating for students (Shalevska, 2021). Moreover, the flexibility and accessibility of online learning allow students to access educational materials and participate in classes from any location. This is particularly beneficial during health crises such as the COVID-19 pandemic (Cheung, 2021b) or when weather-related events, like earthquakes or hurricanes, disrupt traditional school teaching. As such, online learning

environments enhance accessibility to educational materials, enable asynchronous learning, and support diverse learning paces and styles. As a result, it can provide personalized learning experiences that enable students to engage with content at their own pace, making education more inclusive and adaptable to individual needs (Blaschke & Bedenlier, 2020; Napso, 2023). This consequently enriches learners' overall educational experience (Aziz & McKenzie, 2020; Liu et al., 2020).

Building on the benefits of online learning, blended learning combines digital media with traditional classroom methods to create an integrated and enriched learning experience. This approach allows teachers and learners to use online and face-to-face learning (Picciano, 2014), allowing them to leverage both contexts. In an ESL blended classroom, for instance, students can use online platforms to learn and practice their grammar and vocabulary, while classroom time is reserved for interactive speaking activities and collaborative projects that require direct communication and peer and instructor feedback (Kjærgaard, 2017; Neumeier, 2005). By combining synchronous and asynchronous interactions, blended learning enhances engagement, motivation and promotes language use in authentic contexts (Motteram & Sharma, 2009). It also increases personalization by addressing the unique needs and learning styles of each student, thus facilitating customized instruction, which has been shown to be effective in meeting individual learner requirements (Garrison & Kanuka, 2004). Collectively, these benefits have been demonstrated to lead to improved academic outcomes (Ceylan & Kesici, 2017).

To summarize, while traditional classrooms are constrained by space and time limitations, online platforms like Zoom, with their capacity for collaborative projects and access to authentic language, provide an interesting ground for L2 learning through meaningful interaction. As will be discussed next, this scenario aligns well with the interactionist hypothesis, which assumes that language learning is most effective when

learners actively negotiate meaning and co-construct knowledge through social interaction.

Interaction in L2 learning: Traditional and Technology-Assisted

Swain's interactionist approach (1985), inspired by Vygotsky's sociocultural theory (1987), focuses on the mechanisms of language acquisition through interaction. It considers language learning through communication and interaction with individuals within the learning environment rather than as an isolated, personal cognitive process. An interactionist approach to learning (Swain, 1987; Long, 1996) involves several important factors for comprehending the dynamic interplay between individuals and their surroundings, especially in educational contexts. Within the context of online learning, this discussion focuses on four key factors within this framework: Input, output, feedback, and social interaction.

Input encompasses the data, stimuli, or information received from the environment. Such input is the basis for subsequent processing and response by individuals (Gass & Mackey, 2006). Output, on the other hand, refers to the reaction or behaviour produced (e.g., from input processing) or the language produced orally or in writing by learners during communication. As such, it reflects an individual's ability to apply the knowledge or skills acquired (Gass & Mackey, 2006). Feedback informs and modifies the behaviour of learners by providing corrective and/or reinforcing responses. This dynamic process of receiving feedback, adapting, and refining output is essential for continuous improvement in language development (Gass & Mackey, 2006). Finally, social interaction emphasizes that learning is not merely a product of input, output and feedback, but it is also shaped by the social interactions in which learners engage with their peers, teachers and/or others (Verga & Kotz, 2013).

In adult ESL classrooms, interaction plays a crucial role in the learning process, emphasizing equality and mutuality as key to effective learning (Storch, 2002). Learners

engaging in collaborative dialogue negotiate meaning, provide feedback, and co-construct knowledge. Consider, for example, research by Mackey (1999), who provides empirical support for the interactionist hypothesis by demonstrating that active participation and negotiated interaction significantly enhance her participants' grammatical skills. This concept was further broadened by Loewen and Sato (2018) by including various facets of interaction, such as input and output, which collectively support L2 acquisition. Their study found that the role of negotiation for meaning, where learners and their interlocutors work together to resolve misunderstandings, is a key mechanism that facilitates language learning, helps learners notice gaps in their language proficiency and pushes them to modify their output, thereby refining their linguistic competence. For similar findings in a task-based setting, see Kusuma et al., (2023). These studies collectively highlight the importance of interaction for language learning in classroom settings.

When incorporating technology into ESL classrooms, learners gain access to a variety of interaction types. CALL enables three primary forms of interaction: interaction with the computer, interaction around the computer, and interaction through the computer (Chapelle, 2003; Egbert & Shahrokni, 2018). Interaction with the computer involves learners directly using software or applications to practice language skills, receive feedback, or engage in language-based activities (e.g., a web-based quiz, ASR or TTS practice). Interaction around the computer focuses on collaborative tasks involving technology that encourage peer support and dialogue among learners (e.g., discussing a video or an image shown on a monitor). Interaction through the computer encompasses communication between learners and others, such as teachers and peers, via online platforms, such as Chat rooms or Video Conferencing, providing opportunities for authentic communication in the target language. These types of interaction made possible by technology, as described by Egbert and Shahrokni (2018), provide learners with

opportunities to engage socially and cognitively with digital tools, thus reinforcing language acquisition in diverse contexts. In the context of mobile learning, Cardoso (2022) emphasizes the significance of mobility in facilitating on-the-go interaction, allowing learners to access learning resources and participate in communicative tasks beyond the traditional classroom setting. These diverse interaction types enhance learner autonomy, offer immediate feedback, and provide access to a wider range of language learning opportunities, complementing traditional classroom-based interactions.

Extending this understanding of interaction to other learning settings, recent studies have also examined the impact of social media platforms and virtual settings on language acquisition. A study by Liu and Jackson (2022) highlighted that social media platforms enable real-time interactions with native speakers, contributing to linguistic and cultural understanding. According to Smith and Chen (2021), these platforms provide diverse cultural contexts and facilitate interactional communications, leading to deeper language learning. The authors also found that meaningful interactions and targeted feedback on platforms like Zoom yield substantial gains in vocabulary and pronunciation. Another study by Sholihah (2021) explored the effectiveness of learning vocabulary via interactions in Zoom and found positive results in enhancing EFL learners' vocabulary, particularly when learners' videos were turned on. Similarly, a recent study by Punkhoom and Jehna (2023) examined the application of interactive virtual feedback through Zoom in enhancing English-speaking skills; their findings indicated positive student perception and benefits for English language skill development. For more similar findings involving the role of virtual feedback in peer-to-peer interactions, see also Alzahrani and Roberts (2021) and Kim (2020).

Further supporting these findings, Chapelle (2010) and Egbert and Shahrokni (2018) underscored the benefits of synchronous and asynchronous communication tools, such as Chat rooms and video conferencing, in facilitating meaningful language learning

interactions. For instance, while video conferencing and Chats allow learners to engage in immediate, spontaneous exchanges that resemble face-to-face conversations, asynchronous tools such as discussion forums and email offer learners the time to reflect, compose, and refine their language output.

As discussed in the next section, Zoom is an example of a tool that offers a range of features conducive to interactive and engaging language learning, both synchronously and asynchronously.

An Introduction to Zoom

One of the most common applications for learning a language is Zoom, which gained widespread adoption during the pandemic. Zoom is a software application for video calls, providing free messaging services to up to 100 people with a time limit of 40 minutes, according to its developers. The application is available on multiple OS platforms and offers three paid plans, allowing users to upgrade, with the highest-paid plan permitting up to 1,000 participants for a maximum of 30 hours. The application provides excellent video, audio, and screen-sharing quality, as well as Chat, Polls, and Breakout Rooms.

In recent years, Zoom has developed several features to facilitate learning, interaction, and meetings via its Web Conferencing capability, which is its primary function. Via Zoom, users can initiate and participate in virtual meetings (or classes) with high-quality video and audio. Considering the interactionist approach adopted in this study, Zoom includes a number of pedagogically interesting interactive features. These include:

- Chats: This feature lets users send text messages, exchange files, and create contact lists. It is helpful during meetings, allowing users to share side conversations and additional information without disrupting the speaker. In the CALL literature, the use of Chats has

been shown to increase the quality of writing, including greater linguistic complexity and lexical diversity in the L2 output, particularly when learners are engaged in pre-writing planning (Fredriksson, 2014; Sauro & Smith, 2010).

- Polls: This feature can be used for polling or administering multiple-choice quizzes. Hosts can create Polls within Zoom meetings to gather feedback, make group decisions, or engage participants. Polls can be set up in advance or on the fly during a meeting, and the results can be shared with participants immediately, making this an excellent tool for interactive sessions or quick decision-making activities. Zoom's polling is the equivalent of "clickers" or learner response systems, which have been shown to enhance L2 learning (Cardoso, 2013; Sénécal & Cardoso, 2024), increase student engagement, and provide immediate feedback in physical classrooms. Poll allows educators to create real-time assessments and engage students during virtual classes (Smith & Brown, 2023).
- Quizzes: (including true /false and short answers): Quizzes facilitate real-life student interaction and offer the flexibility of conducting assessments synchronously and asynchronously. They enable real-time assessments and foster interactive discussions in virtual classrooms (Smith & Brown, 2023). Quizzes have also been associated with improved academic performance (Sotola & Crede 2021), highlighting their effectiveness as a tool for enhancing learning outcomes.
- Breakout Rooms: This Zoom capability allows hosts to split meeting

participants into smaller groups in separate sessions. This is particularly useful for workshops, training sessions, and classes where group work may be needed. Hosts can split participants automatically or manually and switch between rooms to monitor and participate in discussions.

- Digital Whiteboard: This is a Zoom option that allows participants to collaborate and draw during classes. This feature allows users to draw freely, add text, and include shapes and lines. Additionally, users can keep the content created on the whiteboard for future reference, making it more useful for brainstorming sessions or visual explanations.

Although Zoom was developed for Web Conferencing, the application is constantly evolving to include new technologies that can potentially enhance learning. Consider the recent incorporation of AI capabilities (e.g., via the automatic transcription of speech), which allows teachers and students to access whatever is orally discussed on the platform.

As indicated above, another technology that has been incorporated into Zoom is Learner Response Systems (or clickers, as they are more commonly called). In the context of Zoom, this technology is utilized via the Poll feature. The rationale behind using polling in education is based on the assumption that learning is more effective when students are engaged with the learning experience. For example, Phelps and Moro (2022) found that polling methods allow students to participate actively, providing immediate feedback and creating an engaging yet enjoyable experience in the learning environment (see also Sénécal et al., 2022 and Sénécal & Cardoso, 2024 for similar findings).

Zoom has developed each of these features to enhance the productivity and interactivity of online meetings (and potentially virtual classrooms), which aligns with its

goal of delivering a versatile and all-encompassing communication platform. From the interactionist perspective adopted in this study, these features hold great promise for language learning.

Zoom in Language Learning

The widespread use of Zoom during the pandemic prompted researchers to explore it for pedagogical purposes. Kohnke and Moorhouse (2020) examined the transition from in-person to online language instruction because of the COVID-19 pandemic, explicitly focusing on Zoom. Their study found that using Zoom to teach English to young learners in Hong Kong during the COVID-19 pandemic helped continuous student engagement and interaction, enabling learners to practice their English skills actively. Feedback from students and reflections from teachers in this study highlighted that while the transition was demanding, it provided valuable lessons on the effective use of technology in education.

In another study, Cheung (2021a) found that the transition to Zoom during the Pandemic reduced the level of interaction between the teacher and students compared to face-to-face lessons. Despite this, the study found that the platform allowed the teacher to leverage certain online features to enhance the assessment of students' listening comprehension skills. Features such as Screen Sharing, and Breakout Rooms were effectively used to simulate a classroom environment and maintain student engagement. Further expanding on the potential of Zoom in language education, Dharmawati (2022) found substantial improvements in students' speaking scores on post-test assessments, indicating that Zoom can effectively enhance the development of certain language skills.

In a related vein, Mpungose (2023) explored university lecturers' perceptions of using Zoom for e-learning during the COVID-19 lockdown at a South African university. Through semi-structured interviews, lecturers expressed positive views on some Zoom features such as Video Conferencing and Chat, which they found to enhance interactive

communication with students. Similarly, Wijaya and Rusdin (2023) reported that Zoom's pedagogical applications positively impacted students' learning outcomes, particularly in the development of their pronunciation, fluency, and listening comprehension. These improvements were facilitated by features like visual aids, Screen Sharing, and interactive dialogues, which allowed students to engage more effectively with the content and discussions. Comparable benefits were observed in mobile educational settings, as noted by Bawanti and Arifani (2021), further supporting the effectiveness of these tools in enhancing students' learning experiences. Finally, Wang et al. (2024) adopted a quasi-experimental design in which the experimental group utilized tablets and smartphones with digital zoom for visual reinforcement during pronunciation training, while the control group used traditional methods such as the audio-only intuitive-imitative method. The results from pronunciation tests and participant interviews showed that the use of Zoom significantly improved pronunciation accuracy and student engagement. These findings highlight the effectiveness of integrating visual technology such as Zoom in foreign language instruction.

Despite the growing body of research on the use of Zoom and other digital tools in language learning, there is limited investigation into how specific Zoom features—such as Breakout rooms, Polls, and digital Whiteboards—can facilitate meaningful interaction and language development. Addressing these gaps is crucial for developing an understanding of how Zoom and its capabilities can be optimized for language learning within an interactionist approach to L2 pedagogy.

The Current Study

Zoom provides interactive L2 learning experiences that enable real-time communication, collaboration, and personalized feedback, essential for effective language acquisition. Zoom's features, like Video conferencing, Chat, Polls, Breakout Rooms, and Whiteboards, highlight the technology's potential for fostering interaction,

negotiation of meaning, and co-construction of knowledge, thus complying with the interactionist approach to L2 learning.

This study adopts an interactionist approach to exploring Zoom's affordances and pedagogical potential in an L2 learning context. Drawing on Cardoso's (2022) chronological framework for conducting CALL research, it focuses on the second stage of the framework, which involves exploring the affordances and pedagogical potential of an established tool like Zoom.

Method

The methodology for exploring Zoom's features applied the interactionist approach to analyze how Zoom features can help ESL learners interact within various contexts. The initial phase of this exploration involves a comprehensive review and examination of all available resources and features provided by Zoom. This encompasses widely recognized functions such as Video Conferencing, Screen Sharing, and Chat options, as well as exploring other less utilized capabilities like Polling, Breakout Rooms and Virtual Backgrounds. This evaluation, grounded in interactionist theories (e.g., Swain, 1987; Long, 1996), assesses how Zoom's functions support L2 learning by facilitating or constraining user interactions.

Based on the existing literature, there appears to be an underdeveloped body of research on using Zoom as a pedagogical tool for language learning, specifically focusing on interaction as a theoretical framework. As such, this study aims to initiate an exploration into Zoom's attributes and capabilities and their potential impact on promoting social interaction and communication in L2 acquisition. This study aims to enrich our understanding of the technological affordances and opportunities available to learners and to learn how Zoom can be used to promote an interactive and learner-centred L2 environment.

Analysis and Discussion

The current section presents the analysis of this study, examining Zoom features in computer-assisted ESL environments and emphasizing how its features align with various pedagogical approaches to language learning. Additionally, as previously mentioned, the features of Zoom will be examined through the framework of Egbert and Shahrokni (2018), which categorizes user interactions with computers into three specific types: working *with*, working *through*, and working *around* the computer. According to Egbert and Shahrokni (2018), working *with* computers enables students to engage in human-computer interactive settings and consequently improve their language skills. In contrast, working *through* computers involves using Zoom to access content and communicate with others. Lastly, working *around* the computer entails using the computer indirectly to facilitate interactions (e.g., by employing prompts or tasks displayed on the screen to initiate conversations among learners).

In addition to Egbert and Shahrokni's (2018) approach to describing and analyzing CALL tools and applications, this study uses Long's (1996) Interaction Hypothesis to analyze Zoom's features, highlighting their role in improving language skills via peer interaction. Since this study draws upon stage 2 of Cardoso's (2022) chronological framework for examining tools for L2 learning, the analysis will focus on assessing *the pedagogical potential* of Zoom as a suite of interaction tools designed to facilitate language acquisition.

Zoom and Comprehensible (Modified) Input

As elaborated in the literature review, an important principle of SLA, articulated in Long's Interaction Hypothesis, emphasizes the importance of comprehensible (i.e., modified) input in facilitating learning and language development. These modifications, like rephrasing what someone said or asking for clarification, help learners connect with the language in a meaningful way. This, in turn, boosts their understanding and ability to

pick up new language structures.

Chat and Comprehensible Input

The first feature that will be analyzed for its ability to provide comprehensible input is the Chat. As a direct tool for collaboration, Chat aligns with Egbert and Shahrokni's (2018) model of working *with* computers, which emphasizes interpersonal connections, such as team discussions. As such, Zoom's Chat can fit into various dimensions of interaction to enhance language learning, serving as a medium for modifying and consequently enhanced the L2 input.

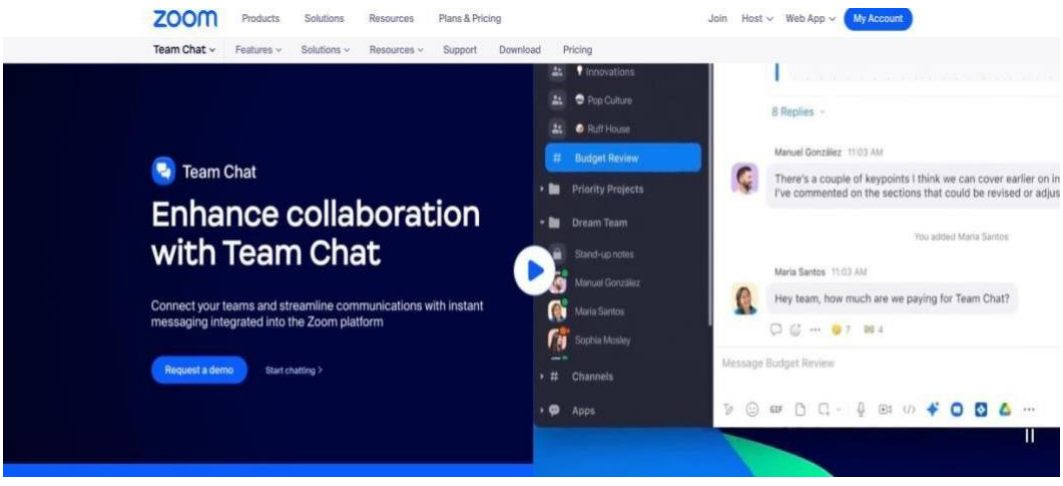
In line with Long's Interaction Hypothesis (1996), modified input occurs naturally in Chat. Written communication allows speakers to simplify language, rephrase statements, and slow down the exchange of information. Since the immediate nature of spoken language does not bind Chat, participants can take more time to compose their messages, often leading to simplified sentence structures and more explicit word choices tailored to the learner's proficiency level. Furthermore, the written (and lasting) nature of Zoom's Chat enables learners to review modified input multiple times, strengthening their comprehension of the vocabulary and language structures utilized. In contrast to spoken conversations, where input is transient, written Chat logs empower learners to analyze the changes made and assimilate new linguistic forms at their rhythm, in line with Long's (1996) emphasis on the significance of modified input for language acquisition. In addition, the Chat can improve listening and speaking skills by offering modified input that clarifies and strengthens spoken language. For instance, learners can ask for clarification directly in the Chat without interrupting the flow of the meeting or class, allowing the speaker to rephrase or further simplify their input. This type of real time adjustment is crucial for making input more understandable and supporting language learning by continually adapting the language level to the learner's needs (Long, 1996).

In addition to the above, slowing down the exchange of information in Chat can be especially advantageous for learners with lower proficiency levels, as they typically need more time to grasp new vocabulary and language structures. This is corroborated by research such as Cheung (2021), which emphasized the benefits of Chat in enhancing listening and speaking skills by clarifying complex verbal input through written text. As a result, the Chat feature stands out as a powerful tool for reinforcing understanding and promoting language production in ways that traditional classroom interactions may not adequately support.

The Chat feature also provides opportunities for comprehensible input by allowing more proficient learners or instructors to write more straightforward explanations or use more basic vocabulary when they notice the learner's difficulty understanding, which mirrors the concept of interactionally modified input. This aligns with Sauro's (2011) study on synchronous text-based Chat, which demonstrates its benefits for L2 learners by providing them with the opportunity to take their time when responding. This reflective pause enables learners to carefully consider their answers, resulting in the production of more refined and target-like language. This observation reinforces the discussion by Egbert and Shahrokni (2018), which showed the facilitating role of Chat in providing meaningful language learning interactions. For an illustration of a typical Zoom interaction using Chat, see Figure 1.

Figure 1

Written Support in Zoom



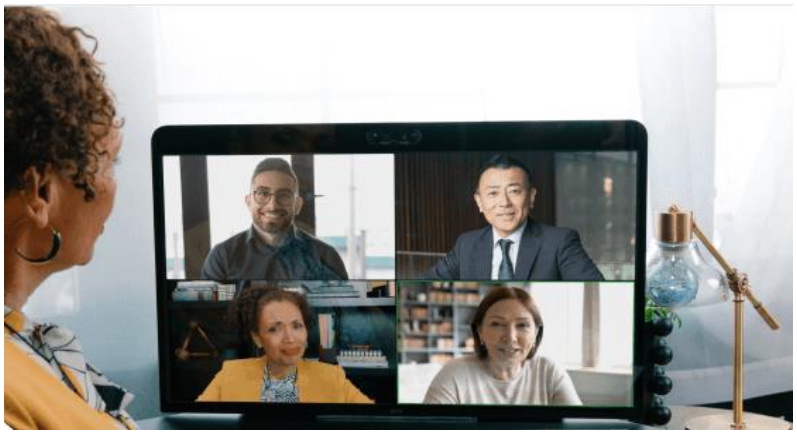
Finally, learners can use Zoom's Chat as a tool for improving their speaking skills, rehearsing their responses based on modified input, and receiving real-time feedback. These interactions help learners develop their listening and speaking abilities by offering accessible, comprehensible input that reinforces language use (Long, 1996). These same capabilities of the Chat were also highlighted in Cheung's study (2021), emphasizing how it can enhance learners' understanding of spoken input, as teachers can provide simplified explanations and rephrased statements in real time. This ability to clarify spoken language through text helps learners process auditory input more effectively, especially in virtual environments with limited face-to-face cues.

Video (Web) Conferencing and Comprehensible Input

Another interactive Zoom feature is Web or Video Conferencing, which, along with Egbert and Shahrokni's (2018) model of working *with* and *through* computers, involves direct and engaging interactions with the technology to complete tasks across geographic boundaries. In this feature, modified input is achieved through a visual and auditory feedback loop that enables instructors to assess learners' reactions and adapt their language accordingly. As Figure 2 illustrates, this Zoom component offers instructors' real-time insights into learners' non-verbal cues, such as expressions of confusion or comprehension of what was said. This visual information enables instructors to adjust their language complexity as necessary. For example, if learners show signs of misunderstanding, instructors can utilize simplified vocabulary or slow down their speech, thereby adapting their input to align with the learners' comprehension levels. This aligns with Long's (1983) view that effective language learning occurs when input is tailored to the learner's proficiency level.

Figure 2

Non-verbal Cues in Video Conferencing



This function in Zoom offers valuable access to enhanced input, creating opportunities for more learner-specific output and enabling participants to receive feedback through its audio and video capabilities. As a synchronous feature, Video Conferencing and its visual and interactive components greatly facilitate the implementation of the Interaction Hypothesis by encouraging Negotiation of Meaning in language learning. This aligns with research by Mpungose (2023), who found that Video Conferencing enhanced interactive communication among students and promoted real-time communicative practice and meaningful negotiation, ultimately enhancing language learning and adjustments in oral production among ESL learners.

Breakout Rooms and Comprehensible Input

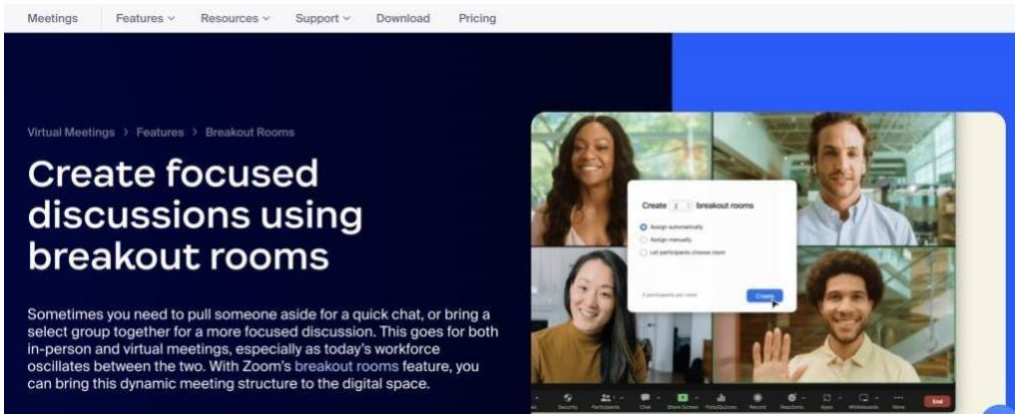
Breakout Rooms, another interactive feature in Zoom, supports the modified input necessary for language learning by fostering an environment where learners can engage in meaningful, accessible, and interactional communication, consequently aligning with Long's (1996) Interactionist Hypothesis. While the Interactionist Hypothesis emphasizes that adjusting the language complexity of modified input to meet the learner's level facilitates better comprehension and aids processing (Long, 1996), Breakout Rooms allow learners to interact in smaller, more focused groups (as illustrated

in Figure 3), where language adjustments can be made more quickly, thus enhancing learning and language development.

Breakout Rooms encourage peer collaboration by simulating physical groups, and these Interactions align with working *through* and *around* computers (Egbert & Shahrokni, 2018). Engagement in Breakout Rooms embodies collaborating *around* computers, where technology enhances human interaction rather than taking center stage in learning. In this environment, peers and instructors can simplify or rephrase their speech, ensuring the language input is accessible to learners of varying proficiency levels. For instance, individuals in Breakout rooms can clarify or ask for repetition to negotiate meaning, consequently receiving immediate, customized input that matches their comprehension. This aligns with insights from Ellis and He (1999), highlighting the importance of using simplified and personalized language in smaller group settings where the learners' ability to adapt their language based on peer feedback fosters deeper engagement and cognitive processing.

Figure 3

Breakout Rooms setting and participants



Finally, the use of Breakout Rooms aligns with recent research indicating the significance of these types of interactive environments in language learning. For instance, their pedagogical implementation reinforces Ellis and He's (1999) conclusion that environments fostering interactionally modified input significantly enhance

comprehension and vocabulary acquisition, making Breakout Rooms a valuable tool for supporting effective language learning.

Share (Screen-Sharing) and Modified Input

The Share function allows Screen-Sharing among participants. This feature can function along with working with and through the computer (Egbert & Shahrokni, 2018) since it acts as a medium to share documents or screens by straightforward use of Zoom's tools to present slides as a medium for collaborative projects, like co-editing a document shared on- screen.

When analyzed through the framework of working *with* and *through* computers (Egbert & Shahrokni, 2018) and using Long's (1996) Interactionist Hypothesis criteria of modified input, this feature shows significant potential for supporting L2 learning. According to Long, modified input, where language input is adjusted in real time to match the learner's proficiency, is essential for enhancing comprehension and learning. In Zoom, as illustrated in Figure 4, Screen-Sharing allows instructors to deliver visual and textual input that can be dynamically adjusted based on learners' immediate needs, which is crucial for scaffolding understanding effectively.

The Zoom Share feature goes beyond the traditional concept of computer-based collaboration. It also allows users to engage with shared content, enabling dynamic interaction through real-time input modifications. This feature transforms technology from a passive tool to an active facilitator, creating more engaging and responsive learning environments. It aligns with the modified input principles of the Interactionist Hypothesis for L2 acquisition by providing opportunities for instructors to adapt their language and materials in response to learners' needs.

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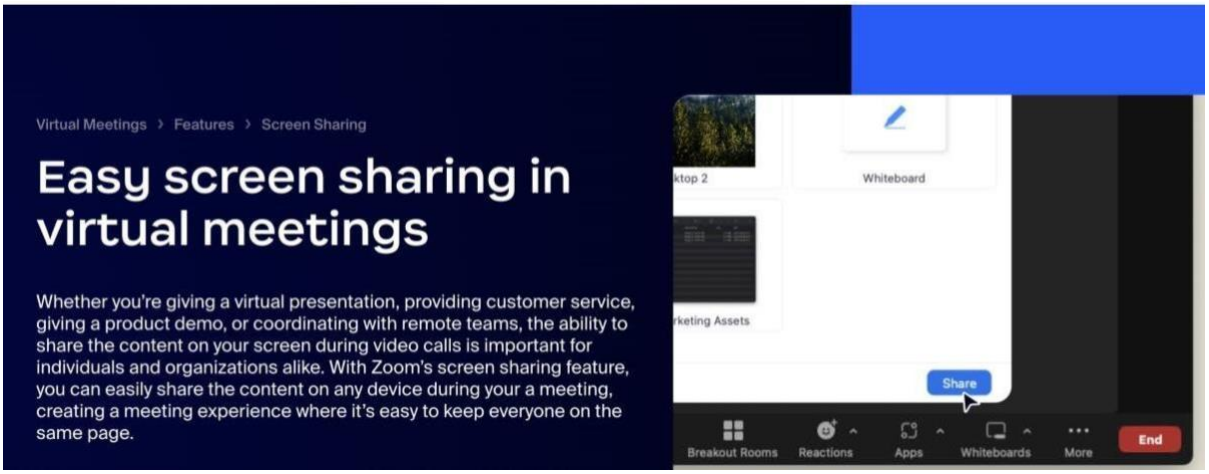
Per Long (1996), modified input involves adjusting language to align with learners' proficiency level, simplifying structures, adjusting speed, or providing clarification to enhance understandability. Zoom's Screen-Sharing enables real-time interaction between learners and instructors, facilitating immediate adjustments and modifications to the presented material, which is crucial for promoting language learning. In a typical language-learning setting, an instructor can share their screen to present materials such as presentations, grammar explanations, or visual aids while providing verbal explanations. As students interact with these materials, instructors can adapt their language in real time by offering simplified explanations emphasizing essential vocabulary or giving additional clarifications when needed.

Figure 4

Zoom Screen Sharing



By Screen-Sharing, instructors can display images, charts, documents, or videos to complement verbal instructions, ensuring varied and accessible content. This multimodal approach, supported by studies such as Ellis and He (1999), emphasizes the combination of visual and auditory inputs to enhance learning, particularly for learners with lower proficiency.

Additionally, Screen-Sharing allows teachers to make real-time changes to their presentations by focusing on details or simplifying information to offer tailored input. This is consistent with the findings of Sauro (2011), which highlight the importance of real-time interaction and input modification in online learning settings. Screen-Sharing not only aids in learning through diverse inputs but also encourages peer interaction, enabling students to share their work for feedback. Furthermore, the Screen-Sharing feature allows instructors to offer tailored input that directly targets learners' areas of misunderstanding, promoting the interactive process emphasized by Long (1996) as crucial for language acquisition.

The Screen-Share feature allows instructors to integrate various modalities, such as visual, textual, and auditory elements, enhancing learners' comprehension by

Proving context and reinforcing meaning. This aligns with the findings of Ellis and He (1999), who underscore the significance of multimodal input in SLA, as it enables learners to engage with content through multiple sensory channels. Consequently, learners gain from modified input through verbal interactions and visual representations, which help their understanding.

Polls/Quizzes and Comprehensible Input

The Polls/Quizzes feature is an interesting pedagogical tool that offers immediate feedback and comprehensible input. In this context, computer-mediated communication involves using technology to facilitate communication between learners and instructors, aligning with working *with* computers (Egbert & Shahrokni, 2018) to provide feedback or check understanding during a session, thus modifying L2 input during learning. This Zoom function enables real time interaction and serves as a tool for educators to evaluate understanding, promptly identify areas of difficulty, and adjust their teaching to align with the learners' current proficiency levels. This immediate reaction to students' errors is critical, as according to Long's (1996) Interactionist Hypothesis, modified input involves adjusting language to meet the needs of learners, ensuring that it is understandable and accessible.

In the context of Zoom's Polls/Quizzes, instructors can assess learners' comprehension through their responses and then offer immediate corrections or explanations to modify input. For example, if learners consistently answer a grammar question incorrectly during a poll, the instructor can promptly simplify their explanations or provide additional examples. This real time feedback loop supports input modification to enhance learner engagement, a vital principle of the Interactionist Hypothesis (Long, 1996).

Building on this understanding, recent studies have highlighted the efficacy

of interactive tools such as Polls/Quizzes in online learning environments. In a survey by research by Al-Jarf (2020), they found that using Polls/Quizzes in online ESL environments improves engagement and fosters better learning through instant feedback. Unlike static teaching tools that offer only pre-recorded or unchangeable content, Zoom's live Polls/Quizzes foster a dynamic learning environment where input can be customized and adjusted in real time. This adaptability enables instructors to consistently evaluate learner comprehension and modify the complexity of their language explanations as needed. For instance, if most learners choose an incorrect answer in a quiz, the instructor can provide modified input immediately, simplifying language or offering additional visual aids to help learners grasp the concept. These analyses support recent findings from Sénécal and Cardoso (2024, in the context of learner response systems or clickers – a related technology), who argue that these interactive technological tools enhance student engagement, which may contribute to more effective language learning through regular testing and immediate feedback.

Whiteboard and Modified Input

The Whiteboard option in Zoom is a valuable tool for facilitating real time interaction in L2 environments, as it allows instructors and learners to engage dynamically and responsively *through* technology (Egbert & Shahrokni, 2018), helping to structure and visualize ideas collaboratively. Additionally, Zoom's Whiteboard feature enables immediate modification of visual, textual, and interactive input, making it an ideal platform for addressing learners' pedagogical needs following the concept of comprehensible input. In alignment with this perspective, Zoom's Whiteboard allows instructors to adapt their input immediately during interactions, facilitating learning using visual aids, drawings, and written explanations in real time. For example, when learners struggle to understand a verbal explanation, the instructor can draw diagrams, highlight key terms, or write simplified sentences on the Whiteboard, making the content more accessible

This aligns with the core idea of the Interactionist Hypothesis, which emphasizes the importance of adjusting input to match the learners' proficiency level and comprehension needs (Long, 1996).

Recent research indicates that interactive visual aids like digital whiteboards can significantly improve learner engagement and understanding. Whiteboards can enhance visibility and promote interactivity since everyone can draw or write on them. They also allow for real-time adjustments, particularly in e-learning environments, thus enhancing the learning experience by providing visual aids which offer learners a modified form of input that they can engage with directly, enabling them to process and internalize the language more deeply. These observations align with Sauro's study (2011), who contends that combining visual, auditory, and textual input can significantly enhance second language acquisition. This multimodal approach allows learners to engage with the material in various ways, making it easier to tailor their learning experience to their level of understanding.

Educators can use a multimodal approach to create a dynamic environment encouraging participation and active learning. This approach stands out for its greater flexibility in accommodating visual and written input when contrasting Zoom's Whiteboard with other interactive tools like Polls/Quizzes. While the latter effectively gauges understanding and offers instant feedback, the Whiteboard permits more personalized input adjustments. Instructors can continuously tailor the language complexity, provide real-time corrections, and employ visual aids to enhance verbal explanations, thus catering to individual learners' needs more effectively. This is consistent with Al-Jarf's (2020) findings, which underscore the positive impact of tools that allow real-time adaptation and visual input on language learners' engagement.

Zoom and Opportunities for Output

The second feature of Long's (1996) Interaction Hypothesis is the opportunity for output practice, which is crucial to L2 acquisition because it allows learners to practice, refine, and internalize linguistic structures through meaningful communication through interaction with peers and instructors. As learners communicate, they test their linguistic hypotheses, receive feedback and adjust their language use. This process of modified output, where learners alter their responses based on interaction, is essential for the Negotiation of Meaning (e.g., ensuring mutual understanding) and for developing greater fluency and accuracy in the target language.

Chat and Opportunities for Output

The Chat feature in Zoom allows learners to refine their language output by allowing them to compose, edit, and adjust their messages before sending them. In written communication, learners have more time to carefully consider their language use, resulting in more accurate and thoughtful responses. This semi-synchronous interaction facilitates adjusted output, as learners can refine their language based on feedback from peers or instructors. This analysis supports the research by Jiang (2021), which demonstrated that synchronous communication tools like Chat empower ESL learners to engage more actively and refine their output by receiving immediate instructor feedback, ultimately improving language acquisition.

Zoom's Video Conferencing and Opportunities for Output

Video Conferencing offers an interesting opportunity for L2 education by providing a platform for interactive and synchronous communication, which aligns well with the Interaction Hypothesis's focus on meaningful opportunities for output practice. This hypothesis posits that language learners benefit from opportunities to produce language in response to feedback from others, as it helps refine their linguistic competencies and adapt output in real time (Long, 1996).

In the ESL context, Zoom Video Conferencing facilitates this by allowing real time conversational exchanges, aligning with Cheung's (2021) conclusions that Zoom enhances learners' ability to immediately adjust their responses based on feedback from instructors or peers, thereby fostering more dynamic and adaptive language Learning-interaction.

This analysis supports Katz and Yemini's (2021) Study, highlighting that learners perceive synchronous interactions on Zoom as effective for enhancing motivation and engagement, which are essential for language learning. Furthermore, our analysis shows that Video conferencing through Zoom allows teachers to use process-oriented approaches to interaction, focusing on spontaneous language use rather than pre-recorded material, a strategy that supports comprehensible input and modified output, crucial elements in ESL learning.

Finally, our analysis demonstrates that Zoom's Video Conferencing functionality, with its ease of use and adaptability, makes it a practical tool for facilitating interactive L2 learning activities. Students can receive immediate corrective feedback and modify their language output, which directly supports the Interaction Hypothesis's tenets of language development. Additionally, the analysis indicates that utilizing Zoom's Video Conferencing enables educators to adopt process-oriented methods for interaction, emphasizing spontaneous language usage instead of relying on pre-recorded content. This approach aids in providing comprehensible input and modified output, which are essential components in learning English as a second language. The analysis aligns with a previous study by Ernest et al. (2021), in which Video Conferencing facilitated collaboration and thus contributed to effective language acquisition.

Breakout rooms and Opportunities for output

Zoom's Breakout Rooms create a virtual space for ESL learners to participate in small-group or paired conversations, providing ample opportunities to practice

speaking—an essential aspect of Long's Interactionist Hypothesis. Long (1996) highlights the significance of output practice, which allows learners to experiment with their language use, identify gaps in their knowledge, and adjust based on Intended interaction and feedback. This process is necessary for developing proficiency in all skills. Breakout Rooms enable learners to produce output in authentic, conversational contexts, allowing them to refine their language knowledge. For instance, in a speaking task, learners might be prompted to discuss a topic, summarize a reading, or debate a concept. As learners produce output, they often encounter challenges in fluency or accuracy, encouraging them to refine their language through self-correction, peer feedback, or input from an instructor. This active engagement enables them to test and adjust their language output as they communicate with peers.

Long's Interactionist Hypothesis emphasizes the crucial role of output practice in language acquisition, as it allows learners to produce and refine their language skills through interaction and feedback. The Breakout Room feature is an excellent platform for facilitating such opportunities, as it allows learners to engage in small groups or paired discussions to practice their language skills in real time, potentially improving their language output through written communication (e.g., via a combination of Chat within Breakout Rooms) and oral exchanges. This analysis aligns with the findings of Tyen et al. (2022), which indicated that short, focused interactions in terms of comprehensible input and opportunities for output, like those occurring in Breakout Rooms, boost learners' skills in negotiating meaning and modifying their language use in real-time, thereby enhancing both fluency and accuracy. Consequently, this feature promotes language learning and comprehension and the active co-construction of knowledge, both vital for practical language use.

Shares (Screen Sharing) and Opportunities for Output

Zoom's Sharing capability is in line with the Interactionist Hypothesis, which

highlights the importance of interaction in the learning process by offering chances for output and meaningful negotiation. The ability for multiple participants to share simultaneously and the use of Breakout Rooms further enrich collaborative learning by supporting turn-taking and focused discussions in smaller groups. Collectively, these functionalities create a vibrant setting where interaction fuels understanding and learning, positioning Zoom as an effective platform for activities centered around interaction and output. The use of Screen sharing in Zoom supports the study by Kohnke and Moorhouse (2020) in which the multiple use of tools helps learners with more engagement and more chances to provide output.

Polls/Quizzes and Opportunities for Output

Polls/Quizzes offer learners instant feedback on their language use and understanding, prompting them to adapt their output. For instance, if learners receive quiz results indicating a misunderstanding, they are motivated to adjust their subsequent responses or seek clarification, consequently improving their language skills. The analysis provided here supports a previous study by Goodman and Moore (2023), in which real-time feedback from Polls/Quizzes enhanced learners' confidence and encouraged them to modify their output as they tested their knowledge and adjusted based on the feedback they received.

Whiteboard and Opportunities for Output

The Whiteboard offers learners an interactive space to represent and modify their language output visually. Students can explain and adjust their explanations, correct errors, and refine their ideas by writing or drawing on the Whiteboard. The Whiteboard also enables peers and instructors to provide real-time suggestions, encouraging learners to improve their output immediately. This analysis supports the research from Kohnke and Moorhouse (2020) and Dharmawati (2022), who reported that the use of Zoom Whiteboard boosts learner engagement, improves pronunciation accuracy, and enhances

fluency. Their research demonstrated how the tool supports learners in refining their language skills through visual and written collaboration, ultimately resulting in more accurate and effective language use.

Zoom and Negotiation of Meaning

Examining modified output forms the basis for the concept of Negotiation of Meaning, a pivotal element of Long's Interactionist Hypothesis. Negotiation of Meaning encompasses the interactive process in which learners and interlocutors collaborate to clarify misunderstandings, request repetition, and adjust to ensure mutual understanding. As will be reported below, Zoom tools such as Chat, Video Conferencing, Breakout Rooms, Share, Polls/Quizzes, and Whiteboard are essential for this negotiation, providing learners with immediate opportunities to address communication breakdowns and improve language proficiency.

Chat and Negotiation of Meaning

The Chat feature in Zoom is a valuable tool for facilitating the Negotiation of Meaning. It enables learners to type out questions, seek clarification, and request further explanations in real time, allowing them to address any misunderstandings as they occur. This process empowers learners to enhance their learning through active engagement with peers and instructors, ultimately leading to more effective language learning. This analysis reinforces Jiang's (2021) observation that Chat tools are highly effective for negotiating meaning in online L2 settings, as they allow learners to seek clarification without the immediate pressure of face-to-face interaction, thereby fostering a collaborative language learning environment.

Video Conferencing and Negotiation of Meaning

Zoom's Video Conferencing is a valuable resource for fostering Negotiation of Meaning in language learning, closely aligning with the tenets of the Interaction Hypothesis. During an L2 class, for instance, synchronous Video interactions offer

students an immediate opportunity to resolve misunderstandings through strategies like clarification requests, confirmations, and rephrasing. Research supports that Video Conferencing can create conditions like face-to-face negotiation by encouraging learners to use gaze and gestures, which are essential in identifying and resolving communication breakdowns (Li, 2022). This visual element, unique to face-to-face interactions and Web Conferencing, aids in more effective negotiation episodes, as learners can observe peers' visual cues and adapt their responses accordingly, resulting in improved understanding and linguistic adjustments (Li, 2022).

Research has demonstrated that task-based Video Conferencing promotes active Meaning Negotiation, particularly in complex language tasks, by encouraging learners to interact with more proficient peers. This type of interaction encourages students to adjust their output for greater intelligibility and communicative effectiveness. Through tasks like information-gap activities, learners encounter misunderstandings that require negotiation, aiding vocabulary acquisition and learning complex structures. Active negotiation is vital during challenging language tasks, leading learners to engage with native speakers or more proficient peers and enhancing the overall L2 learning experience.

Moreover, Zoom's multimodal setup, which features text Chat and Breakout Rooms (see forthcoming sections), improves these negotiation activities by enabling learners to validate and modify their language use in smaller group settings. This setup effectively fosters negotiation-rich interactions that enhance understanding and allow learners to practice precise language usage in real time (Long, 1996). This analysis supports the research conducted by Massner (2021), who reported that Video Conferencing tools such as those available on Zoom facilitate complex interaction dynamics that support language learning. These tools enable ongoing negotiation episodes, allowing students to engage in a multimodal environment that closely simulates

genuine conversational flow.

Breakout Rooms and Negotiation of Meaning

Breakout Rooms offer a low-pressure setting for participants to practice negotiating meaning with their peers and facilitate a more engaging language learning experience. By actively working to ensure comprehension among all group members, participants enhance their language skills through collaborative problem-solving and meaningful interaction. In Breakout Rooms, participants can discuss topics within smaller groups, allowing for a natural exchange of ideas. When misunderstandings arise, participants can ask for clarification, rephrase their comments, or request repetitions, leading to deeper and more meaningful conversations.

Share (Screen Sharing) and Negotiation of Meaning

Zoom's Screen-Sharing feature enables learners to visually complement their verbal explanations, thereby aiding in negotiating meaning when misunderstandings or communication breakdowns arise. Learners can practice and clarify their spoken or written language by sharing documents, images, or other visual aids, which helps them, and their peers understand the information being exchanged and negotiated more effectively. This study's analysis supports Cheung's (2021) findings, highlighting how the Share option in Zoom boosts learners' ability to negotiate meaning through multimodal resources. This feature has the potential to bridge understanding gaps, especially in virtual classroom settings.

Moreover, Whiteboard enables real time feedback, empowering learners to modify and refine their work based on guidance and suggestions from peers or instructors. This ongoing experimentation, feedback, and improvement process is crucial in interpreting meaning and helps learners grasp complex language structures. Table 1 presents an overview of the features examined, along with their definitions and how they relate to the key components of the interactionist hypothesis.

Polls/Quizzes and Negotiation of Meaning

Polls/Quizzes serve not only as assessment tools but also as platforms for negotiating meaning. When learners respond to quiz questions or participate in Polls, immediate feedback can uncover misunderstandings, prompting them to seek further explanations or ask follow-up questions. This feedback loop facilitates the Negotiation of Meaning as learners collaborate in solving problems interactively to address gaps in their understanding. These insights align with Goodman and Moore (2023), indicating that online Quizzes often spark subsequent discussions where learners negotiate meaning based on their quiz performance, ultimately fostering a deeper understanding of the material.

When utilized for assessment, Zoom's Polls/Quizzes offer immediate feedback that allows for real-time adjustments to language delivery. This aligns with Long's (1996) assertion that timely feedback is essential for learners to refine their language skills. It also supports the work of Al-Jarf (2020), which showed that online Quizzes for language learners, along with continuous assessment and immediate feedback, promote autonomous learning.

Whiteboard and Negotiation of Meaning

Zoom's Whiteboard facilitates the Negotiation of Meaning by enabling instructors and learners to visually represent and modify ideas in real time. As learners interact with the content on the Whiteboard, they can request clarification or suggest alterations to the information presented, thus promoting an interactive understanding process. This tool supports learners in negotiating meaning through both written and visual methods. Analyzed within the framework of the Interactionist Hypothesis, digital Whiteboards enhance Negotiation of Meaning by offering a platform where learners can work together to tackle problems, ask for clarification, and refine their understanding through immediate visual interaction. Digital Whiteboards greatly enhance the negotiation process

by allowing learners to visualize their thoughts and responses, thus fostering more interactive learning. Research in online language learning consistently demonstrates that interactive tools, such as Whiteboards, significantly improve L2 learning by encouraging active engagement with language material. In a study by Wang et al. (2019), they highlighted how interactive Whiteboards increase interaction between teachers and learners by providing dynamic visual aids, thus enhancing the learning of complex language structures. For instance, in a language learning setting, when learners encounter difficulties understanding a verbal explanation, instructors can utilize the Whiteboard to diagram concepts, emphasize key terms, or provide simplified versions of sentences (similar to a traditional blackboard). This approach enhances the accessibility of the content, making it easier for learners to grasp complex ideas.

Table 1

Zoom Features Within an Interactionist Approach to SLA: Key Components

	Interactionist Hypothesis Components		
Zoom Features	**Comprehensible Input**	**Opportunities for Output**	**Negotiation of Meaning**
Chat	Allows written clarification, simplified input, and rephrased explanations. Supports learners reviewing input repeatedly.	Enables learners to refine written output by composing and editing messages before sending.	Facilitates real-time clarification and rephrasing without interrupting the flow of interaction.
Video Conferencing	Real-time visual and auditory feedback helps instructors adjust speech and simplify input based on learner cues.	Encourages real-time conversational exchanges, enabling immediate adaptation of language.	Promotes meaning negotiation through gestures, facial expressions, and spoken rephrasing.
Breakout Rooms	Provides opportunities for simplified, small-group communication tailored to learners' proficiency levels.	Encourages active language use in smaller settings, facilitating practice and self-correction.	Low-pressure settings allow learners to clarify misunderstandings and refine their language use.
Screen Sharing	Combines visual, textual, and auditory inputs to enhance comprehension. Instructors can adjust materials in real time.	Allows learners to respond to visual stimuli and refine their explanations during shared content sessions.	Supports negotiation by visualizing spoken language through diagrams or documents to resolve misunderstandings.
Polls/Quizzes	Provides immediate feedback to adapt instruction and reinforce understanding.	Encourages learners to adjust responses based on quiz feedback, enhancing output accuracy.	Interactive feedback loops enable learners to seek clarification or further explanation.
Whiteboard	Offers real-time written and visual input to support comprehension.	Enables learners to visually represent, explain, and modify their language output collaboratively.	Facilitates negotiation through collaborative problem-solving and clarification of visual content.

Conclusion

In this study, we conducted an examination of Zoom's capabilities as a platform for enhancing L2 acquisition, with a particular emphasis on its alignment with key principles of SLA, as outlined in Long's (1996) Interaction Hypothesis. By systematically analyzing various features, including Chat, Web/Video Conferencing, Breakout Rooms, Share (Screen Sharing), Polls/Quizzes, and the Whiteboard, we aimed to assess how these tools support essential SLA constructs from the Interaction Hypothesis, namely comprehensible input, opportunities for output practice, and Negotiation of Meaning. As such, our analysis contributes to the growing body of literature on integrating technology in language learning, particularly within the realm of CALL, where adaptive and interactive digital environments are playing an increasingly important role.

This study's analysis underscores Zoom's adaptability in enabling synchronous and asynchronous (or semi-synchronous) communication and real-time feedback, crucial for promoting meaningful language interaction and facilitating learning. The various features of Zoom examined in this study demonstrate its potential as a pedagogical tool in L2 learning, as it can provide distinct advantages that, when combined, enhance language understanding, communication, and collaborative learning. For example, the Chat feature allows learners to engage with customized input at their own pace, promoting individualized learning. Likewise, Breakout Rooms encourage small-group interactions that facilitate the Negotiation of Meaning, empowering learners to adjust their language output based on peer feedback. Furthermore, Sharing, Polls/Quizzes, and Whiteboards contribute to multimodal learning by integrating visual, auditory, and textual inputs, which are important for language acquisition (Lim & Kessler, 2024).

This capability underscores Zoom's importance in creating accessible and responsive learning environments for students. Such an approach is becoming increasingly essential as educational institutions adopt online and blended learning models, where CALL tools like Zoom can effectively bridge the gap between traditional classroom dynamics and the unique needs of remote language learners.

The implications of this study reach beyond the practical applications of Zoom for language learning; they underscore the necessity for ongoing research to enhance the pedagogical potential of digital platforms across different instructional contexts. Future investigations should concentrate on how Zoom's features can be adapted to cater to the specific needs of learners with varying proficiency levels. Additionally, a comparative analysis of Zoom with other CALL tools could provide deeper insights into its relative effectiveness and help identify best practices for integrating multiple digital tools to create comprehensive language learning ecosystems. It is also suggested that future research examine the effectiveness of individual Zoom features with pre-post-test research designs to establish their pedagogical potential. Adding to the above, longitudinal studies investigating the effects of prolonged Zoom use on language development could provide valuable insights into the platform's long-term benefits and challenges.

While offering valuable insights into Zoom's potential for facilitating L2 learning, the study presents several limitations. Firstly, the analysis focuses heavily on the features and capabilities of Zoom without examining their effectiveness through empirical, learner-focused research, such as pre-post-tests or longitudinal studies. Additionally, the study relies on secondary sources, ignoring the direct evaluation of learners' outcomes. The rapid pace of technological advancement also limits the findings, as Zoom's features and competitors are likely to evolve, potentially rendering the conclusions less relevant over time. Finally, the scope of the study does not fully address the varied needs of

learners with diverse linguistic backgrounds or proficiency levels, nor does it consider potential challenges such as technological accessibility, user familiarity, or instructor training, all of which may influence the platform's efficacy in real-world contexts.

In conclusion, this study highlights Zoom's diverse advantages as a powerful platform for facilitating L2 acquisition. Its interactive and highly flexible (and theory-agnostic) features enable educators to seamlessly integrate essential SLA principles into virtual learning environments. As online education continues to grow worldwide, platforms such as Zoom are set to play a crucial role in enhancing the scalability, accessibility, and personalization of language education to meet individual learning needs.

Chapter 3: Concluding Remarks

This chapter overviews the study's goals and findings and discusses their potential impact on language education and research in second language acquisition. This thesis explored Zoom's affordances and pedagogical potential in L2 learning by applying elements of the interactionist hypothesis and assessing each interactive feature with them.

Drawing on Cardoso's (2022) chronological framework for conducting CALL research, this study focused on the second stage of the framework by examining the affordances and educational value of an existing tool, Zoom.

Summary of Main Findings

The primary objective of this research was to explore Zoom's pedagogical potential as a platform for L2 learning. Zoom's interactive features, such as Video Conferencing, Share (Screen Sharing), Breakout Rooms, Polls/Quizzes and Chat can increase learners' access to comprehensible input, promote opportunities for output practice, and foster meaningful interaction, collaboration, and real-time feedback. These features align with critical principles of SLA, particularly the interactionist approach, which emphasizes the role of social interaction and negotiation of meaning in learning (Swain, 1987; Long, 1996).

The analyses showed that the Chat function promotes interaction that leads to modified input, allowing learners to engage with the language in a meaningful way through real-time adjustments and written reflections. Meanwhile, Breakout Rooms provide opportunities for modified output and negotiation of meaning, facilitating interactions within smaller groups. Additionally, the Share function enhances language learning by offering multimodal input such as visual aids, text, and audio, which together support diverse learning styles and reinforce understanding. Together, these elements demonstrate how Zoom effectively support language learning practices, bridging theoretical concepts with practical applications in online education settings to create a dynamic and interactive

environment**.**

Implications for Education and Research

Zoom's extensive features have exciting implications for ESL language education. It provides adaptability by removing the physical limitations of conventional classrooms, enabling students to participate in language practice from anywhere and at any time. This accessibility is essential in modern education, where online learning has become a critical component of language instruction, particularly during and after the COVID-19 pandemic (Putri et al., 2021).

In an L2 learning context, Zoom's features, particularly Breakout Rooms, facilitate small group discussions that allow learners to negotiate meaning, enhance their language output, and receive immediate feedback, fostering a collaborative and interactive learning environment. Research shows that these interactive environments are vital for language development, reflecting real-world communication that leads to deeper learning (Jiang, 2021; Long, 1996).

From a research perspective, this research has shown how Zoom bridges theoretical insights in second language acquisition with practical applications in online education, highlighting its potential to effectively support and enhance language learning processes through digital tools. By enabling synchronous and asynchronous interactions, Zoom supports a variety of pedagogical approaches and methodologies, making it an adaptable tool for language educators. This study adds to the growing literature on integrating digital platforms in language learning and their optimization for interactive teaching methods (Chapelle, 2003).

Future Development

This thesis represents an initial exploration of Zoom's potential in L2 pedagogy, focusing on its role as a tool for interaction and communication in L2.

Building on Cardoso's (2022) chronological framework for evaluating and selecting CALL materials, the next phase of this research should focus on conducting an empirical investigation into how effectively Zoom enhances language learning. For example, one could examine the polling feature in Zoom to verify if its immediate feedback, increased participation through voting, and creation of a game-like atmosphere are beneficial in developing key language skills such as speaking, listening, reading, and writing, along with other essential subskills such as pronunciation and vocabulary. By implementing pre- and post-test designs, researchers could evaluate learning outcomes across various proficiency levels and contexts. Additionally, qualitative methods, such as interviews or focus groups, would yield valuable insights into how learners and educators perceive Zoom's usability and its influence on motivation and confidence. A mixed-methods approach would ensure a thorough evaluation, capturing measurable learning progress and users' personal experiences. The next phase of this research should include a more comprehensive investigation into specific Zoom features, such as Polls/Quizzes and Whiteboards, and their potential to enhance language learning outcomes (the last stage in Cardoso's 2022 framework).

Reflecting on the discussions surrounding Zoom's potential in ESL education, it is evident that its versatile features have significantly transformed the landscape of language learning, making it more accessible, interactive, and flexible. Looking ahead, research must delve deeper into these features and explore their specific roles in language development. By promoting meaningful interactions, fostering collaboration, and linking theoretical concepts to practical applications, Zoom effectively meets the dynamic needs of contemporary language instruction.

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