| **RESEARCH ARTICLE**

Collaborative Learning and Teaching in Digital Environments: A Systematic Review of Two Decades of Research

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| **ABSTRACT**

This study aimed to conduct an SR of the author's own studies published between 2004 and 2025 on collaborative learning in EFL (English as a Foreign Language), AFL (Arabic as a Foreign Language), translation, reading, writing and research skills among students from Saudi Arabia, Ukraine, Russia and India. The 26 studies were categorized into 3 thematic clusters: (i) Who collaborated (local collaboration within the same class or institution, national collaboration across Saudi universities, and global collaboration across countries); (ii) which skills and courses (translation, reading, writing, grammar, research, general EFL and AFL, teachers' professional development); and (iii) which technologies (Twitter, Facebook, Skype, SMS, Chatbox, Elluminate, WebEx, Polycom based systems supported by Sony and Tandberg units, mobile e books, online discussion forums, and Learning Management Systems such as Blackboard, WebCT, Moodle, Makkah eLearning, and Nicenet). Findings revealed that most collaborative learning cases were effective in enhancing students' linguistic skills, cultural awareness, interactions, engagement, and teachers' professional development across a variety of contexts and skill areas. Successful collaborations typically featured clear student-centered activities, task assignment, accessible technologies, active instructor facilitation, and that supported sustained interaction. The students benefited from opportunities for exchanging ideas, practicing skills, and engaging with peers, giving and receiving feedback, which contributed to improved motivation, interaction and communicative competence. Additionally, online collaboration fostered a stronger sense of community among the students, encouraged reflective learning, and supported the development of digital communication skills across multiple platforms. However, two studies reported a complete failure in collaboration due to unfamiliarity, students' reluctance to interact publicly with students and teachers whom they did not know, cultural constraints, and limited digital readiness. Cross cutting analysis revealed that collaboration is highly sensitive to cultural, contextual, and institutional factors, and that its success depends on alignment between students' preparedness, technological support and instructional design. Overall, the review showed that collaborative learning has a great potential for language skills development, but its effectiveness is dependent on how it is conducted, cultural responsiveness, and sustained instructional support from collaborating teachers and the online community.

| **KEYWORDS**

Systematic Review (SR), Collaborative Learning, interaction, communication, Teaching and learning, Digital Environments, student-student, student-instructor, local collaboration, national collaboration, global collaboration

| **ARTICLE INFORMATION**

1. Introduction

Collaborative learning[1] is an instructional approach in which students work together in pairs or small groups to solve problems, complete tasks, or create products. It focuses on joint intellectual effort, active interaction, and knowledge sharing, shifting the

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[1] Collaborative Learning

focus from individual memorization to collective understanding and critical thinking. Collaborative tasks give students the opportunity to learn from each other; develop communication, leadership, and collaboration skills; connect with others in a way that fosters a sense of belonging and community; clarify misconceptions, and deepen their understanding; serve as thought partners for their peers to make sense of what they are learning, and develop a more nuanced and complex understanding from exposure to multiple perspectives. Collaborative learning covers a variety of instructional approaches, such as Team-Based Learning, Problem-Based Learning, Peer Instruction, group work, and teamwork, with each differing in structure and group size. Activities can range in length and complexity, from brief "turn-to-your-neighbour" discussions to extended, semester-long team projects. Collaborative learning consists of five elements[2]: Face-to-face promotive interaction, interpersonal and small group skills, group processing, positive interdependence, and individual accountability.

Due to the importance of collaborative learning in education, a plethora of studies, systematic reviews (SRs), and meta-analyses (MAs) investigated general CLL (CLL) such as issues of cooperative learning in ESL classes (Liang, et al., 1998); EFL teaching in collaborative online settings in the digital classroom (Yingxin et al, 2024); the use of cooperative learning in English language teaching and learning (Akbar, 2022); and cooperative learning application in English language learning (Nurmaya, 2020). Other studies used a variety of pedagogical approaches such as project-based collaborative learning in the English classroom (Putimasurai, Angraini & Mukhlash, 2024); mobile-assisted collaborative language learning (Guo, Jeyaraj & Razali, 2024; Ngo, 2018); technology-enhanced cooperative language learning (Liu, Thurston & Ye, 2024); and collaborative ubiquitous learning and multimodal communication in English language education (García Sánchez & Clouet, 2022). CLL has also been used in learning Arabic and Indonesian languages in Indonesia (Simon, Mutmainah, Sarif & Annisa, 2025; Suparjan, Praheto & Ismiyani, 2023). Social aspects of CLL were examined by some studies such as collaborative learning approach in teaching English from a social psychology perspective (Sahril & Butarbutar, 2022); the effect of a collaborative learning intervention on EFL students' English learning and social interaction (Alzubi, Nazim & Ahamad, 2024) and collaborative learning approaches to promote peer interaction and support among L2 Learners (lopez & estremera, 2025).

Another group of SR and MA studies focused on collaborative writing as in the following studies: collaborative learning to develop students' guided writing and oral performance in poetry (Kamala & Abdul Aziz, 2020); online collaborative story writing (Montanelli & Ruskov, 2023); collaborative writing implementation in K–12 L2 classrooms (Lu & Kim, 2021); how technology supports collaborative writing learning in higher education (Veddayana, Suyitno, Widyartono & Aldresti, 2025); technology-enhanced collaborative writing in EFL settings (Pardede, 2024); collaborative tools in enhancing ESL writing during Covid-19 (Yee & Yunus, 2021); and MALL-based collaborative writing in second language classrooms (Wang, 2023).

Despite the growing number of SRs on collaborative language learning (CLL), the existing literature remains fragmented, with most reviews focusing on a single skill, tool, pedagogical approach, or cultural context. Prior SRs have examined collaborative writing (Kamala & Abdul Aziz, 2020; Lu & Kim, 2021; Wang, 2023), mobile-assisted collaboration (Guo et al., 2024; Ngo, 2018), cooperative learning in ESL/EFL contexts (Liang et al., 1998; Akbar, 2022; Nurmaya, 2020), or specific regional settings such as Arabic or Indonesian language learning (Simon et al., 2025; Suparjan, Praheto & Ismiyani, 2023). Other reviews have focused on particular pedagogical models or environments, including project-based collaborative learning (Putimasurai, Angraini & Mukhlash, 2024), technology-enhanced cooperative learning (Liu, Thurston & Ye, 2024), collaborative ubiquitous learning (García Sánchez & Clouet, 2022), or VR-supported collaboration (Van der Meer et al., 2023). While these studies contribute valuable insights, each study addresses only one dimension of the broader CLL landscape. No existing review synthesizes collaborative learning across multiple skills, platforms, languages, cultures, and institutional settings in an integrated manner, nor has any SR examined a long-term, programmatic body of research produced by a single scholar.

This gap highlights the need for a comprehensive SR that brings together diverse forms of collaborative learning and offers a unified conceptual framework grounded in a coherent set of studies. Addressing this need, the present study aims to conduct an SR of the author's own research published between 2004 and 2025 on collaborative learning in English as a Foreign Language (EFL), Arabic as a Foreign Language (AFL), translation, reading, writing, and research instruction among students in Saudi Arabia, Ukraine, Russia, and India. The author's research program encompasses collaboration among students, between students and teachers, across universities, and across countries; collaboration mediated through digital platforms; and collaboration in translation, reading, writing, research, and general EFL and AFL. It also spans a wide technologies as Twitter, Facebook, online discussion forums, learning management systems, Elluminate, SMS, Chatbox, and web-conferencing tools.

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[2] The 5 Elements of Collaborative Learning

By synthesizing these 26 studies conducted over two decades, this SR provides the first integrated account of how collaborative learning has been conceptualized, implemented, and experienced across multiple skills, technologies, and cultural contexts within a single, longitudinal research program.

This SR is therefore significant because it provides the first comprehensive synthesis of a long-term, programmatic body of research on CLL conducted by a single scholar across more than two decades. The author's 25 studies span collaboration in translation, reading, writing, grammar, and multimodal communication; collaboration among students, between students and teachers, and between universities; and collaboration across diverse digital platforms such as Twitter, SMS, Elluminate, VR, chat tools, and mobile e-books. They also encompass multilingual and multicultural contexts, including EFL, AFL, and cross-border collaborations involving Saudi Arabia, Ukraine, and Russia. By integrating these multiple dimensions into a unified framework, this review fills a clear methodological and conceptual gap in the literature and offers a new, multi-dimensional model of CLL that has not been previously articulated.

Finally, the current SR is part of a broader series of SR/MA projects by the author, that has so far included an SR of studies on English–Arabic and Arabic–English translation error studies (Al-Jarf, 2026a); pronunciation instruction and practice in L2 (Al-Jarf, 2026c); Arabic–English transliteration of personal names and public signage (Al-Jarf, 2026d); children's language acquisition in Saudi Arabia (Al-Jarf, 2026e); classroom practices, writing enhancement and creativity among EFL struggling students (Al-Jarf, 2026f); an SR of the effectiveness of mind-mapping on multiple English language skills in the Saudi context (Al-Jarf, 2026g); innovative word formation and pluralization processes in Arabic (Al-Jarf, 2026i); and an SA and MA of studies on AI Arabic translation, linguistics and pedagogy (Al-Jarf, 2026j); a self-systematic review of mobile apps for developing multiple language skills in EFL (Al-Jarf, 2026b); an integrative analysis of empirical studies on inadequate staffing and large class sizes in Saudi EFL and translation programs (Al-Jarf, 2026h).

2. Methodology

2.1 Study Corpus
The corpus consisted of 26 research articles by the author published between 2004 -2025. Because the 26 studies addressed multiple aspects of collaborative teaching and learning, all 26 studies will appear across each thematic dimension (e.g., scope of collaboration, skills developed, and technologies use). The studies are organized into the following thematic clusters:

Cluster 1 – Scope of Collaborative Learning
The scope of collaborative learning in the 26 studies falls into three main types: local collaboration, national collaboration, and global collaboration. Each type reflects a distinct level of interaction, institutional reach, and cultural engagement.

A. Local Collaboration (within the same class or institution)
This sub-cluster is represented by **12 studies**, all of which involved collaboration among students or between students and instructors within a single institutional setting. These include collaborative mobile e-book reading for struggling EFL college readers (Al Jarf, 2021a); communication and interaction with college students through a website Chatbox (Al Jarf, 2021d); connecting university students, faculty, and administrators through an online SMS service (Al Jarf, 2021e); communication among language and translation instructors and students, as well as administrator–student communication via Twitter (Al Jarf, 2020d; Al Jarf, 2016); integrating Elluminate in EFL reading and grammar instruction (Al Jarf, 2014b; Al Jarf, 2013b); examining the effects of online collaborative activities on second language acquisition (Al Jarf, 2009b); online collaboration in translation instruction among students and instructors (Al Jarf, 2008); general communication, interaction, and learning via university student forums in Saudi Arabia (Al-Jarf, 2006b); learning English on Facebook (Al-Jarf, 2012b); and videoconferencing for segregated university campuses in Saudi Arabia (Al Jarf, 2005b).

B. National Collaboration (across Saudi universities or campuses)
This sub-cluster includes **6 studies** that facilitated collaboration across different Saudi universities or campuses. These studies examined interactive translation practice on Twitter (Al Jarf, 2020f); connecting students across universities in Saudi Arabia (Al Jarf, 2005a); cultural issues in online collaborative learning in EFL (Al Jarf, 2007); teachers' online discussion forums in Saudi Arabia (Al-Jarf, 2006d); and online collaborative translator training in an online discussion forum (Al Jarf, 2017).

C. Global Collaboration (across countries and cultures)

Global collaboration is represented by **8 studies** involving cross-national or cross-cultural interaction. These include collaborative distance Arabic language learning between Russian and Arab students in Africa (Al Jarf, 2025b); building cultural

bridges through social media networks between Indian students and global peers (Al Jarf, 2020a); connecting graduate students across the world through research web conferences (Al Jarf, 2018); synchronous online training workshops (Al Jarf, 2013c); using online dialogue to develop cross-cultural understanding (Al Jarf, 2006e); cross-cultural communication among Saudi, Ukrainian, and Russian students (Al Jarf, 2006a); connecting the EFL classroom with local and global communities (Al Jarf, 2009a); ESL teachers' professional development on Facebook during the Covid-19 pandemic (Al-Jarf, 2021c); and ESL teachers' online discussion forums and professional development (Al-Jarf, 2014a).

Cluster 2 – Skills/Courses Taught Through Collaborative Learning

The 26 studies in this cluster examined collaborative learning of a wide range of language and research skills across different courses such as collaborative and interactive translation practice (Al-Jarf, 2020d; Al-Jarf, 2020f; Al-Jarf, 2017; Al-Jarf, 2008); collaborative mobile ebook reading for struggling EFL college readers (Al-Jarf, 2021), and collaborative EFL reading instruction via Elluminate (Al-Jarf, 2014b); collaborative writing by Saudi, Ukrainian, and Russian students online (Al-Jarf, 2006a); collaborative Elluminate web conferences in EFL grammar instruction (Al-Jarf, 2013b); cross-cultural understanding, communication, and collaboration and dialogue (Al-Jarf, 2020a; Al-Jarf, 2007; Al-Jarf, 2006; Al-Jarf, 2009a); general EFL skills through collaborative activities, communication, interaction (Al-Jarf, 2009b; Al-Jarf, 2006b; Al-Jarf, 2012b; Al-Jarf, 2005a); research skills synchronous online training workshops by graduate students across the world (Al-Jarf, 2018; Al-Jarf, 2013c); collaborative distance Arabic language learning between Russian and Arab students in Africa (Al-Jarf, 2025b); and teachers' professional development (Al-Jarf, 2021c; Al-Jarf, 2014a; Al-Jarf, 2006d); connecting university students, faculty, and administrators through an online SMS service (Al-Jarf, 2021e) and communicating and interacting with college students through a website Chatbox (Al-Jarf, 2021d). Together, these studies demonstrate the breadth of skills and courses enriched through collaborative learning across diverse linguistic, cultural, and instructional contexts.

Cluster 3 – Technologies used in collaborative learning

Cluster 3 captures the range of digital technologies used to facilitate collaborative learning across the corpus, reflecting a progression from early web-based tools to more advanced synchronous and mobile platforms. A substantial group of studies employed social media. Twitter was used for language and translation instructors and students communication, for interactive translation practice, and for administrator–student communication (Al Jarf, 2020d; Al Jarf, 2020f; Al Jarf, 2016). Facebook and Skype for collaboration among students in different countries (Al Jarf, 2020a), Facebook for learning English and for ESL teachers' professional development during the Covid-19 pandemic (Al-Jarf, 2012b; Al-Jarf, 2021c). Other studies utilized SMS services and Chatbox tools to connect university students, faculty, and administrators and support communication and interaction among them (Al Jarf, 2021e; Al Jarf, 2021d); web-conferencing tools, including Elluminate in collaborative reading and grammar instruction (Al Jarf, 2014b; Al Jarf, 2013b), WebEx, used for synchronous online research workshops (Al Jarf, 2018, Al Jarf, 2013c). Videoconferencing systems such as Polycom, Sony, and Tandberg enabled real-time interaction across segregated campuses (Al Jarf, 2005b). Mobile e-books were used in collaborative reading by struggling EFL learners (Al Jarf, 2021). A large subset of studies relied on online discussion forums like OWCP, Nicenet, Google forums, and Dave's ESL Café, to facilitate translator training and translation practice (Al Jarf, 2017; Al Jarf, 2008), communication and learning via university student forums (Al Jarf, 2006b), online dialogue for cross-cultural understanding (Al Jarf, 2006), and teacher professional development (Al-Jarf, 2014a; Al-Jarf, 2006d). Finally, several studies used general online learning management systems such as WebCT, Moodle, Makkah eLearning, Nicenet to support collaborative tasks, intercultural communication, and SLA development, including connecting EFL classrooms with local and global communities (Al Jarf, 2009a), examining the effects of online collaborative activities on SLA (Al Jarf, 2009b), exploring cultural issues in online collaborative learning (Al Jarf, 2007), and facilitating cross-cultural communication among Saudi, Ukrainian, and Russian students (Al Jarf, 2006a). Collectively, these technologies illustrate a diverse and evolving digital ecosystem through which collaborative learning was carried out across local, national, and global contexts.

2.2 Eligibility (Inclusion & Exclusion) Criteria

To be included in the corpus, the studies had to be authored by Reima Al-Jarf, published between 2004 and 2025, and contain extractable data relevant to the use of collaborative learning in practicing translation, reading, grammar, general EFL skills, research, cross-cultural communication, and Arabic as a foreign language using Twitter, Facebook, Skype, SMS, Chatbox, mobile e-books, online discussion forums, Elluminate, WebEx, videoconferencing systems, and online learning management systems (LMS). The collaboration took place between students in the same class or institution, among students at different national universities and students in different countries. Because the dataset constitutes a closed, author-bounded corpus, all publications were retrieved from the academic platforms listed in Section 2.4, and no external database search was required. Based on these inclusion criteria, several groups of studies by the author were excluded because they fall outside the scope of CLL, as follows:

1) Duplicate studies in the form of conference presentations for which full journal articles already exist. These include: building cultural bridges through social media networks (Al-Jarf, 2020b); collaborative distance education between Russia and Africa during Covid-19 (Al-Jarf, 2020c); college administrator-student communication via twitter (Al-Jarf, 2015); connecting students, faculty and administrators through online SMS (Al-Jarf, 2012a); communicating and interacting with college students through a website Chatbox (Al-Jarf, 2011a); cross-cultural communication: Saudi, Ukrainian, and Russian students online (Al-Jarf, 2011b); intercultural communication: Saudi, Ukrainian and Russian students online (Al-Jarf, 2004b); and teachers' online discussion forums in Saudi Arabia (Al-Jarf, 2006c).

2) Studies in which collaborative learning was only a partial component, rather than the primary instructional focus, were excluded. These included: blogging about sustainable development in the EFL college classroom (Al-Jarf, 2025a); blogging about current global events in the EFL writing classroom and its effects on skill improvement, global awareness and attitudes (Al-Jarf, 2022a); blogging about the Covid-19 pandemic in EFL writing courses (Al-Jarf, 2022b); how EFL, linguistics and translation instructors engage students in distance learning during the Covid-19 second wave (Al-Jarf, 2022c); how students were engaged during the second wave of COVID-19 by EFL, linguistics and translation instructors in distance learning (Al-Jarf, 2022d); combating the Covid-19 hate and racism speech on social media (Al-Jarf, 2021b); distance learning and undergraduate Saudi students' agency during the Covid-19 pandemic (Al-Jarf, 2020e); multimodal teaching and learning in the EFL college classroom (Al-Jarf, 2024a; Al-Jarf, 2024b); integrating RCampus in college reading and writing for translation students (Al-Jarf, 2010); enhancing freshman students' performance with online reading and writing activities (Al-Jarf, 2013a).
3) Focus on one student in a digital community as in the following study: Interaction analysis in online learning communities with a focus on the student leader (Al-Jarf, 2022e).

2.3 Corpus Characteristics

The final corpus consisted of 26 studies authored by Reima Al Jarf between 2004 and 2025. Because the dataset represents a closed, author-bounded research program covering more than two decades, the corpus is both comprehensive and internally coherent, reflecting the author's sustained scholarly trajectory in using CLL. The included studies vary in methodological design, encompassing qualitative analyses, quantitative counts and percentages, intervention studies, descriptive and quasi-experimental investigations. All included articles share a common focus on the use of collaborative learning in developing translation, reading, grammar, research, Arabic, and general English language skills. Across the corpus, the studies collectively examine how collaborative learning was used to develop a variety of skills through a range of technologies by students in the same class or institution, across national universities, and across countries. To facilitate synthesis, the 26 studies were organized into three thematic clusters, each representing a distinct dimension of the author's research program (see Section 2.3). Together, these clusters provide a comprehensive overview of the author's contributions to collaborative learning. The corpus reflects a longitudinal, multimodal research agenda that traces the evolution of collaborative learning technologies, pedagogical strategies, and learner outcomes over time.

2.4 Information Sources

The information sources were limited to platforms that index the author's complete scholarly output. No external database search was required, as the aim was not to identify all studies on collaborative learning but to synthesize all CLL studies within a single, self-contained research program. All records were retrieved from publicly accessible academic databases in which the author's publications are fully archived. These sources include Google Scholar, ResearchGate, Semantic Scholar, Academia.edu, SSRN, ERIC, EBSCO, ProQuest, Scopus-indexed journals, and institutional repositories such as the King Saud University repository. Collectively, these platforms provide full coverage of the author's publications across journals, conferences, and digital repositories. All included and excluded studies were verified manually to ensure accuracy, remove duplicates, and confirm alignment with the eligibility criteria described in Section 2.2.

2.5 Data Extraction and Synthesis

Data extraction and synthesis were conducted through an integrated, multi-stage process designed to accommodate the descriptive and heterogeneous nature of the included studies. For each study, the following information was extracted from the full text: publication year; skill focus (e.g., translation, reading, grammar, SLA development, research, cross-cultural communication, Arabic as a foreign language); participant characteristics (e.g., student–student, student–teacher, institution–institution, cross-national groups, CLL at the local institutional, national or global level); methodological approach (qualitative analysis, corpus-based mapping, collaborative interventions); data sources (e.g., learner reports, classroom tasks, surveys, and test scores); and key findings related to collaborative learning or pedagogical implications. These elements were selected to

support thematic synthesis and cluster-level comparison rather than effect-size calculation, as the corpus consists primarily of qualitative analyses, descriptive studies, and collaborative learning interventions, with only a few controlled experimental trials. All extracted data were entered into a structured matrix to ensure consistency across studies and to facilitate systematic comparison. Coding was conducted manually to preserve conceptual accuracy and to classify each study according to the skill under development, the specific technology used, and the interacting groups.

Data synthesis proceeded in three stages: (i) all studies were grouped into three thematic clusters based on their skill focus, scope of collaborating, and specific technologies used (see Section 2.3). This clustering enabled synthesis within conceptually unified domains while preserving the distinct contributions of each study. (ii) Studies within each cluster were compared according to linguistic skill, learner population, scope of collaboration, technology used in the collaboration, methodological procedures, data sources, recurring patterns, and pedagogical implications. (iii) Findings were synthesized across clusters to identify broader patterns in collaborative learning, including cross-skill mechanisms, cognitive and affective processes, recurring learner challenges, and the pedagogical affordances of the technologies employed.

Because the corpus represents a single author's research program, terminology, methodological framing, and analytical categories were highly consistent, minimizing coding discrepancies and enabling a coherent synthesis of collaborative learning findings across more than two decades of research.

2.6 PRISMA Flow Description

Because the current review is based on a closed, predefined corpus consisting of twenty-six studies published by the author between 2004 and 2025, the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) flow reflects a streamlined identification and screening process. All publications within this time frame were retrieved from the academic platforms listed in Section 2.4 and manually screened for relevance. After removing duplicates, all records were assessed against the eligibility criteria. Studies were excluded if they were duplicates or if collaborative learning constituted only a partial rather than primary focus. Following full-text evaluation, only studies directly addressing collaborative learning in translation, reading, grammar, research, general Arabic and English language skills, among students, between students and teachers, and across institutions and countries, using technologies such as Twitter, SMS, Elluminate, chat tools, mobile e-books, videoconferencing systems, and online discussion forums were retained. The final set of studies was then organized into three thematic clusters for synthesis. The PRISMA flow therefore documents the progression from the initial identification of all publications within the author-bounded corpus, through screening and eligibility assessment, to the final inclusion of studies that directly contribute to the analysis of collaborative learning across diverse technologies and skill domains.

3. Results

3.1 Overview

The results of this SR synthesize findings from 26 studies examining the use of collaborative learning in developing students' translation, reading, writing, research, general EFL and general AFL skills. The analysis is organized around the 3 thematic clusters identified in the methodology, allowing the results to highlight both the distinct contributions of each strand and the cross-cluster patterns that characterize the author's research program. Across the corpus, the studies consistently demonstrate how collaborative learning, whether implemented locally, nationally, or internationally, supports learner engagement, fosters interaction, and enhances linguistic and cultural development. The overview presented in this section summarizes the major trends emerging from the corpus, including the types of collaboration implemented, the instructional purposes they served, the linguistic and attitudinal outcomes reported, and the mechanisms through which collaboration facilitated learning. The next subsections present detailed findings for each thematic cluster, followed by a cross-cluster synthesis that identifies shared pedagogical principles, recurring challenges, and the broader implications for CLL.

3.2 Study Characteristics
Cluster 1 – Scope of collaborative learning

Cluster 1 examines the scope of collaborative learning represented across the corpus, capturing how interaction was carried out at the local, national, and global levels. At the local level, collaboration occurred within the same class or institution, where students, instructors, and administrators engaged through mobile e-books, Chatbox tools, SMS services, Twitter communication, Elluminate sessions, university forums, Facebook pages, and videoconferencing systems. These studies illustrate how collaborative learning supported reading, grammar, translation, and general EFL skills within shared institutional contexts. At the national level, collaboration extended across Saudi universities and campuses, involving joint translation practice on Twitter, inter-university communication projects, culturally oriented EFL collaborations, and teacher–teacher interaction in online

discussion forums. These studies highlight how geographically distributed learners and instructors within the same country engaged in shared tasks and professional exchange. At the global level, collaboration connected learners and teachers across countries and cultures, including Arabic language learning between Russian and Arab students, cross-cultural exchanges via social media, international research web conferences, synchronous online training workshops, and teacher professional development through Facebook and online forums. Together, these studies demonstrate a wide spectrum of collaborative arrangements, ranging from classroom-based interaction to international, cross-cultural engagement, reflecting the author's sustained exploration of how collaboration operates across diverse social, institutional, and geographical boundaries.

Cluster 2 – Skills/courses taught through collaborative learning

Cluster 2 synthesizes the range of linguistic and academic skills developed through CLL across the corpus. A substantial group of studies focused on translation practice, where learners and instructors engaged in interactive translation tasks through platforms such as Twitter and online discussion forums, highlighting how collaborative environments support negotiation of meaning, peer feedback, and shared problem-solving. Another set of studies examined reading development, demonstrating how tools such as mobile e-books and Elluminate sessions facilitated comprehension, collaborative strategy use, and engagement with texts. Collaborative learning also extended to writing, particularly in cross-cultural contexts where students from three different countries (Saudi Arabia, Russia and Ukraine) exchanged ideas and perspectives to enhance written communication. In grammar, synchronous web-conferencing tools were used to support collaborative learning and practice of grammatical structures. A large subset of studies addressed cultural understanding and cross-cultural communication, showing how online dialogue, social media networks, and global classroom connections fostered intercultural awareness and communicative competence. Additional studies explored general EFL illustrating how forums, Facebook groups, and other platforms supported interaction, participation, and language growth. Additionally, the corpus includes a study demonstrating how cross-national collaboration supported AFL learning by Russian and Arab students in Africa. Collaborative learning was applied by graduate students engaged in international web conferences and synchronous online training workshops to develop research skills. Finally, several studies focused on teachers' professional development, showing how online forums and social media platforms enabled collaborative knowledge exchange, reflective practice, and community building among educators. Together, these studies reveal a broad and interconnected skill landscape in which collaborative learning supports linguistic, cultural, academic, and professional development across diverse contexts.

Cluster 3 – Technologies used in collaborative learning

Cluster 3 captures the range of digital technologies used to facilitate collaborative learning across the corpus, reflecting a progression from early web-based tools to more advanced synchronous and mobile platforms. A substantial group of studies employed social media, particularly Twitter, and Facebook, to support interaction, translation practice, administrator-student communication, language learning, and teacher professional development, with some projects integrating Skype to engage in oral language interaction through video calls between Indian students and EFL students in other countries. Other studies utilized SMS services and Chatbox tools to enable rapid, text-based communication between students, instructors, and administrators within institutional settings. A second major category involved web-conferencing and synchronous communication tools, including Elluminate and WebEx, which were used to support collaborative reading, grammar instruction, research training, and international workshops. Videoconferencing systems such as Polycom, Sony, and Tandberg further enabled real-time interaction across segregated campuses and geographically distant learners. Mobile technologies also played a role, with mobile e-books supporting collaborative reading and strategy development. A large subset of studies relied on online discussion forums built in OWCP, Nicenet, Google forums, and Dave's ESL Café, to facilitate sustained dialogue, peer feedback, translation collaboration, cross-cultural exchange, and teacher professional development. Finally, several studies used general online Learning Management Systems (LMS) and web-based platforms such as WebCT, Moodle, Makkah eLearning, Nicenet, RCampus and other LMS-like environments to support collaborative tasks, intercultural communication, and SLA development. Collectively, these technologies illustrate a diverse and evolving digital ecosystem through which collaborative learning was enacted across local, national, and global contexts.

3.3 *Results of the Collaboration*
Failed Collaboration Case 1: National Cross-University Grammar Course (KSU–UQU) (Al-Jarf, 2007)

One study involving freshman students at two Saudi universities attempted to implement a shared online grammar course using the Makkah e-Learning LMS. Despite structured instructional design, weekly discussion prompts, and instructor facilitation, the collaboration failed entirely. Only five students registered across both institutions, and interaction in the discussion forums was almost non-existent. The breakdown was attributed to cultural and contextual factors, including students' discomfort with

cross-institutional interaction, gender-segregated educational norms, limited prior experience with online learning, fear of public mistakes, and the perception that optional online work was not academically meaningful. These factors collectively prevented the formation of a functional collaborative learning environment.

Successful Collaboration Case: Cross-Cultural Online Writing Project (Saudi–Ukrainian–Russian) (Al-Jarf, 2004a)

A large cross-cultural writing project connecting students in Saudi Arabia, Ukraine, and Russia demonstrated successful collaborative learning. Students interacted through 13 discussion threads, posting 186 messages that reflected engagement with cultural issues, global events, and personal experiences. Ukrainian and Russian students contributed the majority of posts, while Saudi students participated more modestly but still engaged meaningfully. The collaboration supported writing development, intercultural communication, and awareness of global issues. Despite initial hesitation among Saudi students due to cultural norms and limited prior experience with online learning, the project produced positive attitudes and demonstrated the potential of cross-national collaboration for enhancing EFL skills and cultural understanding.

Collaborative Mobile eBook Reading for Struggling EFL College Readers (Al-Jarf, 2021a)

Across the collaborative learning studies, Al-Jarf's (2021a) quasi-experimental study showed that students who engaged in collaborative mobile e-book reading made significantly higher gains in reading skills than those who completed individual paper-book reading. The experimental group demonstrated substantial improvement from pre- to post-test, and their post-test scores were significantly higher than the control group. The collaborative tasks, including group summaries, peer questioning, online discussion, and synchronous interaction, were associated with increased engagement, more active practice, and greater confidence. Survey responses further indicated that students perceived the collaborative e-book environment as motivating, supportive, and more enjoyable than traditional reading activities.

Effects of Online Collaborative Activities on Second Language Acquisition (Al-Jarf, 2009b)

This study on online collaborative activities using Nicenet also demonstrated clear learning gains associated with collaborative work. Although both groups received identical in-class instruction, the experimental group engaged in weekly online collaboration in small groups, where they researched sub-topics, synthesized information, posted summaries, generated comprehension questions, and provided peer feedback. Post-test results showed that the experimental group achieved significantly higher gains in English reading skills compared to the control group. Students attributed their improvement to the collaborative structure of the tasks, opportunities for active participation, meaningful topics, and the supportive peer-interaction environment.

Survey-Based Studies

Across the survey-based studies, participants consistently reported positive perceptions of online communication and collaboration tools. Students, instructors, and administrators indicated that platforms such as Chatbox, SMS services, Twitter, Facebook, Elluminate, and online forums enhanced interaction, facilitated information exchange, and strengthened the sense of community. Participating students highlighted benefits such as increased motivation, easier access to peers and instructors, opportunities for cross-cultural communication, and improved professional development for teachers. Collaborative online environments were perceived as supportive, engaging, and conducive to participation and learning. However, these studies relied solely on self-reported data and did not measure actual language gains, providing evidence of perceived usefulness rather than demonstrated effectiveness.

4. Discussion

4.1 *Meta-Conclusion*

Across the body of research reviewed, a consistent pattern emerges: technology-mediated collaborative activities, whether implemented through structured instructional interventions or through open, communication-driven platforms, tended to enhance learners' engagement, interaction, and perceived learning opportunities in L2 contexts. Experimental and quasi-experimental studies provided the strongest evidence, showing that structured collaborative tasks conducted through e-books, Nicenet, Blackboard, and other online tools lead to measurable gains in reading and language skills when compared with traditional, individual learning approaches. These improvements are attributed to increased participation, peer feedback and support, opportunities for meaning-focused interaction, and the motivational impact of collaborative work.

Survey-based studies, while not measuring proficiency gains, offered converging evidence from learners, instructors, and administrators. Participants consistently reported that online communication tools, such as Chatbox, SMS services, Twitter, Facebook, Elluminate, videoconferencing, and online forums, enhanced interaction, strengthened social presence, and created supportive learning environments. These platforms were perceived as facilitating access to peers and instructors, enabling cross-cultural exchange, and expanding opportunities for professional development. Although these studies relied on self-report, their findings align with the outcomes of experimental research by highlighting the central role of interaction, community building, and learner agency in technology-enhanced environments.

Taken together, the evidence suggests that online collaborative activities, whether formal or informal, contributed positively to second language acquisition by increasing meaningful communication, promoting active engagement, and providing learners with multiple channels for participation. While experimental studies demonstrated actual learning gains, perception-based studies revealed the mechanisms that likely drive these gains: motivation, social support, autonomy, and authentic communicative practice, feedback and enjoyment. The convergence of findings across methodologies strengthens the overall conclusion that collaborative online environments hold significant potential for enhancing L2 learning when thoughtfully integrated into the learning process.

4.2 Meta-Interpretation

Taken together, the findings across the included studies reveal a coherent pattern regarding the role of online collaborative activities in second language acquisition. The experimental and quasi-experimental studies demonstrate that when learners engage in structured, task-based collaboration, such as group summaries, peer questioning, shared problem-solving, and synchronous discussions, they tend to achieve higher gains in reading and language skills than peers who work individually or rely solely on traditional instruction. These improvements suggest that collaborative online environments create conditions that align with well-established principles in SLA: increased exposure to comprehensible input, opportunities for meaningful output, negotiation of meaning, and interaction-driven noticing.

The survey-based studies, although not measuring proficiency gains directly, help explain why collaborative online environments appear to be effective. Learners consistently report that online platforms increase their motivation, sense of community, confidence, and willingness to participate. They describe these environments as supportive, enjoyable, and more flexible than face-to-face settings. Instructors and administrators likewise highlight the value of online communication tools for extending interaction beyond classroom walls, facilitating timely feedback, and enabling cross-cultural exchange. These perceptions illuminate the social and affective mechanisms that likely underpin the gains observed in experimental research.

Across methodologies, a shared interpretation emerges: online collaborative activities enhance learning not simply because they introduce technology, but because they restructure the learning environment in ways that promote agency, interaction, and engagement. The convergence of quantitative outcomes and qualitative perceptions suggests that collaborative online spaces function as catalysts for deeper processing, sustained participation, and more meaningful language use. Thus, the collective evidence points to a model of technology-enhanced language learning in which collaboration—rather than the tool itself—is the primary driver of improvement.

4.3 Cross-Cutting Insights

Across the corpus, several cross-cutting insights emerged regarding the conditions under which collaborative learning succeeded or broke down. First, prior experience with online learning consistently shaped the quality of interaction. Students who had previously used online platforms, whether for writing, culture, or general EFL tasks, participated more confidently and showed richer exchanges. In contrast, students with limited digital literacy or no prior exposure to online learning were more hesitant, less active, and more likely to disengage.

Additionally, cultural and contextual factors played a decisive role in shaping collaborative behavior. Studies involving cross-national groups showed that cultural curiosity, novelty, and exposure to global issues often motivated participation and enriched the quality of interaction. However, in collaborations within Saudi Arabia, cultural norms surrounding gender segregation, identity disclosure, and public visibility significantly constrained participation, especially among freshman students. These factors contributed directly to the breakdown of collaboration in one national-level project, where students' reluctance to interact publicly prevented meaningful engagement.

Moreover, collaborative projects that were integrated into course requirements, supported by in-class brainstorming, or linked to graded components generated higher levels of engagement. On the contrary, optional online components, especially when introduced to novice learners—resulted in minimal participation, even when extra credit was offered.

Furthermore, the type of technology used and familiarity affected the sustainability of collaboration. Platforms that were intuitive, accessible, and familiar (e.g., Nicenet, Twitter, Facebook, discussion forums) supported more consistent interaction. By contrast, platforms that required independent navigation, offered limited institutional support, or were accessed from home without guidance created barriers that reduced participation.

Finally, instructor presence and facilitation were critical factors. Studies with active instructor involvement, through modelling, encouragement, feedback, and coordination across institutions, showed stronger collaborative dynamics. But when instructors had limited control over students' access, motivation, or assessment, collaboration weakened.

together, these insights indicate that successful collaborative learning depends on learner readiness, cultural context, platform usability, task integration, and sustained instructional support. Failures occurred when several of these conditions were absent simultaneously, whereas successful collaborations were characterized by alignment across these dimensions.

4.4 *Implications*
Findings of this review highlight the following important implications for the design and implementation of collaborative learning in technology-mediated language instruction:

(i)   Successful collaborative learning depends on learner readiness in terms of digital literacy and prior exposure to online platforms. Students who had previously engaged in online learning demonstrated greater confidence, higher participation, and more sustained interaction. This suggests that collaborative projects should be introduced gradually, beginning with familiar tools and easy tasks before expanding to cross-institutional or cross-cultural collaborations.
(ii) This SR highlights the need to account for cultural and contextual factors when designing collaborative activities. In contexts where gender segregation, identity concerns, or conservative social norms shape learner behavior, instructors must provide additional scaffolding, reassurance, and support. Projects that ignore these contextual realities risk limited participation or complete breakdown of collaboration. Designing culturally sensitive tasks, offering anonymity options when appropriate, and integrating in-class preparation can help mitigate these barriers.
(iii) the results demonstrate that task integration and assessment weight are critical determinants of engagement. Collaborative activities that were embedded within course requirements, linked to learning outcomes, or tied to graded components generated higher levels of participation and richer interaction. Optional online components, by contrast, were often perceived as peripheral and received minimal attention. This indicates that collaborative learning should be positioned as a core pedagogical strategy, not an add-on.
(iv) This SR highlights the importance of technology selection and usability. Platforms that were intuitive, accessible, and aligned with students' existing digital practices supported more effective collaboration. Conversely, platforms that required independent navigation, lacked institutional support, or were accessed from home without guidance created barriers that hindered participation. This suggests that institutions should invest in reliable, user-friendly platforms and provide ongoing technical support to both instructors and students.
(v)   Successful collaborations were characterized by active instructor presence, through modelling, encouragement, feedback, and coordination across institutions. In contrast, projects in which instructors had limited control over student access, motivation, or assessment could not sustain interaction. This means that effective collaborative learning requires instructors to adopt a facilitative role, provide both pedagogical and emotional support throughout the learning process.

Collectively, these implications point to the need for intentional, context-aware design of collaborative learning environments. When technological, cultural, pedagogical, and affective factors are aligned, collaboration can significantly enhance linguistic, cultural, and academic development. When these conditions are absent, even well-designed projects may fail to generate meaningful interaction.

4.5 *Positioning This Work Within the Global Collaborative Learning Research*
When viewed against the broader international literature on collaborative learning in technology-mediated environments, this corpus offers a distinctive and contextually grounded contribution. Global research on collaborative learning has largely focused on structured peer interaction, group problem-solving, and computer-supported collaborative learning models implemented in technologically mature educational settings. Much of this work emphasizes cognitive outcomes, group dynamics, and the affordances of digital platforms for supporting shared knowledge construction. Studies frequently examine collaboration in

blended or online courses where learners possess relatively high digital literacy and operate within institutional cultures that normalize online interaction. In contrast, the studies synthesized in this SR illuminate how collaborative learning unfolds in culturally conservative, gender-segregated, and digitally uneven contexts, where learners' readiness for online interaction cannot be assumed. Rather than treating collaboration as a purely pedagogical technique, this corpus emphasizes the sociocultural, institutional, and affective conditions that success or the failure of the collaboration. The findings indicate that collaborative learning is not universally transferable; its success depends on alignment between pedagogical design, cultural expectations, technological accessibility, and learners' prior experiences with online communication.

While global collaborative-learning research often focuses on within-class or within-institution collaboration, this corpus extends the field by documenting collaborations that have local, national, and international scopes. They show how collaborative learning can support cross-cultural communication, professional development, and language ad research skill building, even when students differ in language proficiency, cultural norms, and technological familiarity. The inclusion of both successful and failed collaborations provides rare insight into the fragility of collaborative learning when barriers outweigh pedagogical intentions, an area underrepresented in prior research, which tends to report successful implementations.

Finally, the current research offers a longitudinal perspective on collaborative learning across more than two decades, tracing the evolution of tools from early discussion forums and SMS services to social media platforms, mobile e-books, and synchronous web-conferencing systems. This historical breadth enriches global scholarship by illustrating how collaborative practices adapt to changing technologies while remaining deeply shaped by local educational cultures.

Taken together, the corpus positions itself as a culturally informed, context-sensitive, and historically grounded contribution to global collaborative-learning research. It demonstrates that collaboration is not merely a pedagogical method but a socially situated practice whose success depends on the interplay of technology, culture, learner readiness, and instructional design.

4.6 *Comparison of Current findings with Prior SRs and MAs Results*
When compared with prior SRs and MAs on CLL, prior SRs and MAs have consistently shown that collaborative learning, whether implemented through computer-mediated communication, peer interaction, group problem-solving, or task-based collaboration, tends to produce positive effects on language development, including gains in writing quality, vocabulary acquisition, reading comprehension, grammar accuracy, and communicative competence. These reviews also highlight the benefits of collaboration for motivation, engagement, and learner autonomy, particularly when tasks are well-structured and supported by instructor facilitation. The current findings are consistent with prior studies in that the majority of studies in the current corpus reported effective collaboration, enhanced linguistic performance, and increased cultural awareness. However, this SR also reveals patterns that are underrepresented in prior SRs and MAs, which typically synthesize research conducted in technologically mature, culturally open, and pedagogically supportive environments. In contrast, the present corpus includes studies conducted in gender-segregated, culturally conservative, and digitally novice contexts, where collaborative learning is not yet normalized. As a result, this SR documents not only successful collaborations but also instances of complete breakdown, offering rare insight into the conditions under which collaborative learning fails.

Prior SRs and MAs often emphasized the role of task design, platform affordances, and group dynamics, but they seldom address the cultural, institutional, and affective barriers that can inhibit collaboration. The current findings show that factors such as identity concerns, gender norms, unfamiliarity with online learning, and the optional status of collaborative tasks can significantly limit participation—even when technological tools are available. This adds a critical dimension to the global evidence base by demonstrating that collaborative learning is not universally effective; its success depends on alignment with local cultural expectations, assessment structures, and learner readiness.

Furthermore, while previous SRs and MAs frequently focus on short-term interventions, the present corpus covers more than two decades and traces the evolution of collaborative learning across multiple technological generations—from early discussion forums and SMS services to social media platforms, mobile e-books, and synchronous web-conferencing tools. This longitudinal perspective is largely absent from prior syntheses and provides a richer understanding of how collaborative practices adapt to changing technological landscapes.

Overall, the current findings reinforce the established benefits of collaborative learning while extending the global evidence base by highlighting the contextual fragility of collaboration, the importance of cultural alignment, and the need for gradual support and guidance in digitally novice environments. These contributions position the corpus as a valuable complement to existing SRs

and MAs, offering insights that are both theoretically significant and practically relevant for implementing collaborative learning in diverse educational settings.

4.7 Limitations of This Systematic Review

Although this SR offers a rich, contextually grounded synthesis that contributes meaningfully to the understanding of collaborative learning in digitally evolving and culturally complex environments, several limitations should be acknowledged when interpreting its findings. First, the SR is author-bounded, drawing exclusively on studies conducted by a single researcher over a period of 21 years. While this provides a coherent and longitudinal perspective on collaborative learning practices, it also limits the diversity of methodological approaches, institutional contexts, and pedagogical philosophies represented in the corpus. As a result, the findings may not fully capture the breadth of collaborative learning research conducted globally. Additionally, the SR is shaped by the specific cultural and institutional context in which the studies were conducted, primarily Saudi Arabia and, in some cases, cross-national collaborations with Ukraine and Russia. These contexts are characterized by gender segregation, conservative social norms, and varying levels of digital readiness. While this provides valuable insight into underrepresented settings, it also means that the findings may not be directly transferable to educational environments with different cultural or technological conditions.

Although the corpus addressed translation, reading, writing, research, general EFL, and AFL skills, several important language and translation courses were not covered, such as speaking, pronunciation, vocabulary development, ESP courses, and interpreting skills. In translation, the corpus did not address collaboration in specialized translation courses. These gaps highlight areas where collaborative learning has not yet been applied within the author's research program.

Despite the wide range of early and mid-generation technologies employed in the 26 studies, several major categories of contemporary technologies are not represented. These include modern video-conferencing platforms such as Microsoft Teams, Google Meet, Blackboard Collaborate Ultra, and BigBlueButton. The corpus also did not include widely used learning management systems such as Blackboard Learn, Canvas, Brightspace (D2L), Edmodo, or Schoology, nor did it incorporate mobile messaging and social communication apps such as WhatsApp, Telegram, Instagram, or Snapchat. No studies in the corpus used productivity platforms such as Google Docs, Google Classroom, Padlet, Miro, Trello, or Notion. AI-based or adaptive learning technologies and tools as ChatGPT, Grammarly, Duolingo, or intelligent tutoring systems, were not used as well. Finally, the studies did not employ immersive or large-scale online learning environments, such as virtual reality (VR), augmented reality (AR), metaverse-style platforms, or MOOCs like Coursera, edX, FutureLearn, or Udemy.

These missing technologies highlight the historical trajectory of the author's research program and point to potential areas for future exploration as digital learning ecosystems continue to evolve.

4.8 Future Research Directions

Findings of this SR suggest several directions for future research on collaborative learning in technology-mediated environments. First, there is a need for more rigorous and diversified methodological approaches, including mixed-methods designs, longitudinal tracking, and experimental or quasi-experimental studies. Such approaches would allow researchers to examine not only immediate learning outcomes but also the long-term impact of collaborative learning on language development, intercultural competence, and learner autonomy. The use of standardized outcome measures would further facilitate cross-study comparisons and support future meta-analytic synthesis.

Future research should also investigate the role of emerging technologies, such as mobile applications, AI-supported platforms, multimodal collaboration tools, and immersive environments, in shaping collaborative dynamics. As digital ecosystems continue to evolve, it is important to understand how new tools may support or hinder interaction, particularly for learners with varying levels of digital readiness.

In addition, future studies may explore the effects of other collaborative learning approaches, including Team-Based Learning, Problem-Based Learning, Peer Instruction, group work, and teamwork. Research is also needed on how core elements of collaborative learning, such as face-to-face promotive interaction, interpersonal and small-group skills, group processing, positive interdependence, and individual accountability, function within technology-mediated contexts.

5. Recommendations

Based on the findings of this SR, this study offers the following recommendations: (i) collaborative learning should be introduced gradually, especially in contexts where students have limited digital literacy or where online interaction is culturally unfamiliar. (ii)

instructors should design collaborative tasks that are integrated into course requirements rather than offered as optional add-ons. When collaborative activities are part of assessment and grades, students perceive them as meaningful and are more likely to participate actively. (iii) collaborative learning initiatives must be culturally responsive. In conservative or gender-segregated contexts, instructors should consider identity-safe participation options, clear guidelines for interaction, and explicit reassurance about the academic purpose of collaboration. (iv) institutions should invest in reliable, user-friendly technologies and provide ongoing technical support. Platforms that are intuitive and accessible, whether mobile-based, web-based, or social-media-supported, enable smoother interaction and reduce barriers to participation. (v) instructors play a vital role in facilitating collaboration. Professional development programs should equip teachers with strategies for facilitation, coordination, and online community building. (vi) Administrative support, curriculum alignment, and infrastructure investment are essential for moving collaborative learning from isolated experiments to sustainable pedagogical practice.

6. Conclusion

This SR synthesized 21 years of research on collaborative language learning conducted across diverse linguistic, cultural, and technological contexts. The findings confirm the well-established benefits of collaboration for language development, cultural awareness, and learner engagement. At the same time, the review highlights the contextual fragility of collaborative learning, showing that success is not guaranteed even when technological tools are available. Cultural norms, digital readiness, task design, assessment structures, and instructor facilitation all play decisive roles in shaping collaborative outcomes. By documenting both successful and unsuccessful collaborations, this review contributes a nuanced understanding of the conditions under which collaborative learning thrives or fails. It also positions this body of work within global collaborative-learning research, offering insights from contexts that are often underrepresented in mainstream scholarship. The longitudinal nature of the corpus further illustrates how collaborative practices evolve alongside technological change, providing a historical perspective that enriches current debates.

Finally, this SR underscores that collaborative learning is not merely a pedagogical technique but a socially situated practice. Its effectiveness depends on thoughtful design, cultural alignment, and sustained support at the learner, instructor, and institutional levels. As digital ecosystems continue to expand, these insights offer valuable guidance for educators and researchers seeking to harness the potential of collaboration in language learning.

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