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Clarifying Online Cooperative Learning in EFL Contexts: A Systematic Review of Learning Outcomes, the Five Core Elements, and Implementation Challenges

Zhang Aijia 

Faculty of Education, Universiti Kebangsaan Malaysia,
 Bangi 43600, Selangor, Malaysia
 North Sichuan College of Preschool Teacher Education,
 Guangyuan, Sichuan, 628017, China

Melor Md Yunus  and Nur Syafiqah Yaccoba* 

Faculty of Education, Universiti Kebangsaan Malaysia,
 Bangi 43600, Selangor, Malaysia

Abstract. Although online cooperative learning has been widely examined in English as a Foreign Language (EFL) education, it is often conceptually blurred with less structured forms of collaborative learning. This review synthesised empirical articles on online cooperative learning in EFL contexts, focusing on study characteristics, reported outcomes, the operationalisation of Johnson and Johnson's five elements, and implementation challenges. PRISMA 2020, Eric, Web of Science, Scopus, and ProQuest were searched for empirical English-language journal articles published up to June 2026. Twenty-five studies met the eligibility criteria and were appraised using the Mixed Methods Appraisal Tool (MMAT). Mixed-methods designs were the most common (56%, $n = 14$), university settings dominated the studies (80%, $n = 20$), and writing was the leading focus (40%, $n = 10$). Of the 17 studies using inferential tests of language-related performance, 16 reported statistically significant positive gains or associations, although the strength of evidence varied. Positive interdependence was explicitly reported in 20 studies and implied in 5. In contrast, small-group skills and group processing were explicitly reported in only 3 and 7 studies, respectively. The main implementation challenges involved weak technological-pedagogical alignment, insufficient instructional scaffolding, and uneven participation and accountability. The findings suggest that online cooperative learning should be conceptualized not according to named cooperative structures alone, but according to how the online cooperative

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*Corresponding author: Nur Syafiqah Yaccoba; nursyafiqahyaccoba@ukm.edu.my

EFL learning environment, instructional configuration, and the five core cooperative learning elements are integrated. Future research should design clearly structured online cooperative EFL courses across more diverse educational settings, language areas, and learner groups, particularly for learners with lower language proficiency or limited digital literacy.

Keywords: online cooperative learning; EFL; instructional design; five cooperative learning elements; PRISMA 2020

1. Introduction

As information and communication technologies continue to develop, online learning has become increasingly prevalent worldwide. In the field of English as a Foreign Language (EFL) education, online learning has gradually attracted widespread attention due to its varied potential in, for example, promoting learner engagement and enhancing instructional effectiveness (Greenhow et al., 2022; Mohammed & Khalid, 2025; Mohtar & Md Yunus, 2022; Xu et al., 2024).

Online learning provides the broader digital environment for instruction, while technology-enhanced language learning (TELL) offers a more language-specific perspective by focusing on how technology can be used to support language learning and teaching activities (Hasumi & Chiu, 2024; Shadiev & Yang, 2020; Singh & Thurman, 2019). TELL involves using computers as a technical innovation to engage with multimedia sources as a means of supplementing teaching methods (Park, 2022). It combines a wide range of technologies and methods, while offering a comprehensive, flexible approach to modern language education (Hasumi & Chiu, 2024). Its effectiveness varies depending on factors such as the type of technology and how is it integrated into teaching (Liu et al., 2024; Seyyedrezaei et al., 2024; X. Wang et al., 2024; Y. Wang & Kabilan, 2024). One promising instructional approach is cooperative learning.

As an instructional approach grounded in social interdependence theory, cooperative learning can be effectively integrated with TELL, while the appropriate use of technology can facilitate students' cooperative learning and enhance their learning experiences. (Johnson & Johnson, 2009, 2014). For example, cooperative learning can provide structured pedagogical approaches for implementing online communication, shared tasks, peer support, and individual responsibility. Studies integrating cooperative learning with computer-assisted, online, and mobile-enhanced EFL instruction have reported improved language performance, communication and motivation among students (Abuseileek, 2012; Chen, 2021; Each & Suppasetseree, 2021a; Lan et al., 2015; Liu et al., 2024).

There has been an increasing focus on how cooperative learning is implemented in online environments and how its different forms influence EFL teaching and learning (Dinh, 2025a; Hamadi et al., 2022; Liu et al., 2024; Zheng & Zhou, 2023). However, some reviews do not always clearly distinguish cooperative learning from the related concept of collaborative learning. For example, some earlier reviews included both "collaborative learning" and "cooperative learning" as

search terms without explaining the distinction between the two concepts. This suggests a broader focus on online peer-supported learning. For this reason, a systematic synthesis of online cooperative learning in EFL contexts remains limited, particularly one that uses Johnson and Johnson's five core elements as a conceptual and analytical framework.

Accordingly, this paper proposes the following research questions:

RQ1. What are the methodological and contextual characteristics of studies on online cooperative learning in EFL contexts?

RQ2. What effects of online cooperative learning on EFL learning have been identified in these reviewed studies?

RQ3. To what extent do the reviewed studies operationalise the five core elements of cooperative learning in online EFL contexts?

RQ4. What common challenges have been reported in the implementation of online cooperative learning in EFL contexts?

2. Literature Review

2.1 Theoretical Foundations of Cooperative Learning

Cooperation can be defined as working together to accomplish shared goals (Johnson & Johnson, 1989, 2018a). Cooperative learning exists when small groups of students work to enhance their own and their groupmates' learning (Johnson et al., 1998). Although it can involve different instructional methods, Johnson and Johnson (2018) argue that five core elements are required in any cooperative learning lesson for its effective operation: positive interdependence, individual accountability, promotive interaction, interpersonal and group skills, and group processing.

Positive interdependence is at the heart of cooperation; it requires students to perceive that they are linked with their group members and can succeed only when their groupmates also succeed and they benefit mutually from one another's contributions. Individual accountability refers to each student being responsible for completing his or her own share of the group's work. Promotive interaction refers to students' efforts to support each other's success by helping, assisting, supporting, encouraging and praising each other's efforts to learn. Social skills refer to the interpersonal and small-group skills needed for effective cooperation, such as communication, leadership, decision-making, trust-building, and conflict management.

Group processing refers to whether group members discuss how effectively they worked together and maintain ways to improve future cooperation (Johnson & Johnson, 1999, 2018a). Many previous studies have discussed cooperative learning in numerous EFL educational settings and they conclude that it is generally associated with positive academic and affective outcomes (Al-Malki et al., 2022; Bećirović et al., 2022; Chen, 2021; Namaziandost et al., 2019, 2022; Pérez-Cañar & Troya-Sánchez, 2023).

2.2 Cooperative Learning vs. Collaborative Learning

Collaborative and cooperative learning have been conceptualised differently by their leading theorists. Bruffee (1999) characterised collaborative learning as creating “conditions in which students can negotiate the boundaries between the knowledge communities they belong to and the one that the professor belongs to” (p. 144). In contrast, Johnson and Johnson (1999a) defined cooperative learning as “the instructional use of small groups in which students work together to maximize their own and each other’s learning” (p. 5). In some studies, cooperation and collaboration have been treated as synonymous terms (Fonseca et al., 2023). More recently, Alzubi et al. (2024) similarly described collaborative learning as “also known as cooperative learning” and drew interchangeably on cooperative- and collaborative-learning literature when explaining an EFL instructional design (Alzubi et al., 2024).

However, in general, researchers have increasingly begun to distinguish between cooperative learning and collaborative learning in recent years (Guo et al., 2024). The key differences between the two approaches are summarised in Table 1. Educators often assume that any activity involving students working in groups can be regarded as cooperative learning. In practice, however, such activities may merely be collaborative, and, for example, often games are too competitive to be cooperative (Dyson et al., 2022). Cooperative learning is a highly structured and carefully designed learning approach, whereas collaborative learning does not necessarily emphasise the five essential elements (Davidson & Major, 2014; Dyson et al., 2022; Jeppu et al., 2023).

In theory, based on its philosophical underpinnings, collaborative learning usually emphasises loosely structured interaction and a relatively high level of learner autonomy, often calling for students to monitor, organise, and regulate their task together (Bruffee, 1995, 1999; Davidson, 2021; DiDonato, 2013). In contrast, cooperative learning is grounded in structure-process-outcome theory and social interdependence theory, which propose that structured shared goals foster positive interdependence and promotive interaction. Learning outcomes arise primarily through these interaction processes rather than from the group structure alone (Johnson & Johnson, 2018b).

Table 1: Conceptual comparison between cooperative learning and collaborative learning

Dimension	Cooperative Learning	Collaborative Learning
Core Conceptualisation	A learner-centred but highly structured instructional approach in which students work together within teacher-designed conditions to achieve shared learning goals.	A learner-centred and less prescriptive approach in which group members share authority and responsibility and jointly construct knowledge or meaning.
Instructional features	Usually more explicitly structured through assigned tasks. The instructor usually plays a more active role in structuring tasks, guiding group interaction, assigning roles, and monitoring group processes.	Usually less formally structured, with greater emphasis on student autonomy. The instructor usually acts more as a facilitator, allowing greater student autonomy and less direct control over group interactions.
Key principles	Requires the careful structuring of five elements: positive interdependence, individual accountability, promotive interaction, social skills, and group processing.	Does not usually require the explicit structuring of these five cooperative learning elements, although interaction, shared inquiry, and group reflection may occur.

Source: The comparison was synthesised from Panitz (1999), Johnson and Johnso (1999), Davidson and Major (2014).

2.3 Previous Reviews of Cooperative Learning in EFL and Online Contexts

Previous reviews of cooperative learning in EFL contexts have primarily focused on its overall effectiveness, its effects on specific language skills, and its influence on learners' affective development. For example, Chen (2021) found that cooperative learning contributed to improvements in language-related academic performance, motivation and attitudes while reducing learning anxiety. Miyasako (2022) similarly reported that cooperative learning significantly improved English skills and proficiency.

Edward and Hashim (2022) also found that cooperative learning enhanced learners' writing ability, peer motivation, learner autonomy and practical interactions, although they identified problems such as unequal participation and domination by particular group members. Overall, these reviews support the positive value of cooperative learning in EFL. However, they mainly examined cooperative learning in face-to-face EFL classrooms, while paying limited attention to specific design and implementation in online environments.

Within the specific field of online learning in EFL contexts, Liu et al. (2024) present the most directly relevant systematic review. From 54 screened studies, the authors further synthesised 11 randomised or quasi-experimental studies and found that technology-enhanced cooperative learning had a large overall effect on language-related achievement, with a mean effect size of 0.86. In addition to

improving language proficiency, technology-enhanced cooperative learning was found to promote critical thinking, communication skills, language awareness, motivation, and self-reflection. Nevertheless, the conceptual distinction between cooperative and collaborative learning was not consistently maintained in the paper: although the title and introductory definition referred to cooperative learning, the research questions and eligibility criteria repeatedly related to collaborative learning. To address this gap, the present review examines online cooperative learning in EFL contexts according to its instructional procedures and the operationalisation of Johnson and Johnson's five cooperative learning elements.

3. Methodology

In this literature review, data collection and analysis were conducted using a systematic methodology, following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) principles (Page et al., 2021). The review included all relevant studies identified through the selected databases, with the search conducted up to June 2026. The study selection process is presented in the PRISMA flow diagram in Figure 1, and a completed PRISMA 2020 checklist is provided in Appendix 1. The methodological quality of the included studies was assessed using the Mixed Methods Appraisal Tool (MMAT) (Hong et al., 2018). No study was excluded solely on the basis of the appraisal results. Instead, the MMAT was used to identify methodological strengths and limitations. Consistent with the MMAT guidance, ratings were reported at the criterion level rather than being combined into an overall quality score.

3.1 Search Strategy

A structured search was conducted across four academic databases, including ERIC, Web of Science, Scopus, and ProQuest. No time restriction was applied. Therefore, the search covered all records available in each database from inception to the end of June 2026. The search string was developed around three core concept groups: online or technology-supported learning, cooperative learning, and English language learning-related terms, as shown in Table 2.

Table 2: Search terms used in the review

Data base	Search field	Boolean Search terms	Limits	Records retrieved
Scopus	Title, abstract, and keywords	(online OR web-based OR internet-based OR "virtual learning" OR e-learning OR technology OR computer-based OR computer-assisted OR "digital learning" OR TELL OR CALL OR MOOC) AND ("cooperative learning" OR "cooperative model" OR "Learning Together" OR "LT" OR "Learning Together & Alone" OR "LTA" OR "Teams-Games-Tournaments" OR "TGT" OR "Group Investigation" OR "GI" OR "Constructive Controversy" OR "Jigsaw" OR "Student Teams Achievement Divisions" OR "STAD" OR "Complex	/	224
Web of Science	Topic		/	187

ERIC	Title or AB or SUB	Instruction" OR "Team Assisted Instruction" OR "TAI" OR "Cooperative Learning structures" OR "Cooperative Integrated Reading and Composition" OR "CIRC" OR "Inside-Outside Circle" OR "Three-Step Interview" OR "Think-Pair-Share" OR "Round Table")	/	77
ProQuest	Title OR Abstract	AND (EFL OR TESOL OR EAL OR ESL OR ESP OR GE OR "English as a Foreign Language" OR "Foreign Language English" OR "English as a second language" OR "English language learning" OR "foreign language learning" OR "English for specific	peer-reviewed journal articles	76

The updated database search retrieved a total of 564 records, including 224 from Scopus, 187 from Web of Science, 77 from ERIC and 76 from ProQuest. In ProQuest, the search was limited to peer-reviewed publications.

3.2 Inclusion and Exclusion Criteria

As shown in Table 2, the screening process applied each criterion separately.

Table 2: Inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria
Written in English	Not written in English
Empirical studies (quantitative, qualitative, or mixed methods)	Non-empirical studies
Published journal articles	Books, conference papers, doctoral dissertations, or online articles
Cooperative learning implemented through online or digital/technology-supported interaction	Cooperative learning not implemented through online or digital/technology-supported interaction
Focused on English as a Foreign Language (EFL)	Not focused on EFL
Explicitly used and focused on cooperative learning in the EFL context	Did not focus on cooperative learning

Studies were excluded if they were: (1) not written in English; (2) non-empirical studies. These criteria were assessed by examining whether the study reported participants, data collection, data analysis, and findings based on empirical evidence. They were also excluded if: (3) they were non-journal publications; (4) cooperative learning was not implemented through online or digital/technology-supported interactions – studies were also excluded if technology was used only for data collection, testing, teacher presentation, or administrative purposes rather than supporting students' cooperative learning activities; (5) they were not focused on EFL contexts – studies focusing on ESL, TESOL in English-dominant countries, non-English foreign languages, or general education subjects were excluded; ESP or EAP studies were retained only when they were clearly situated in an EFL-related English learning context; (6) they did not focus on cooperative

learning – this criterion was adapted from previous systematic review procedures (Dyson et al., 2022). During title and abstract screening, studies that did not indicate a cooperative learning focus through the term “cooperative learning” or did not recognise cooperative learning structures (e.g., typical cooperative learning Structures are Think-Pair-Share, Jigsaw, Teams-Games-Tournament etc.) in the title and abstract were excluded as weakly relevant. During full-text screening, because some studies did not fully describe all cooperative learning elements, key aspects of the implementation process were examined – interventions such as instructional design, task procedures, group arrangements, learner roles, peer interaction, and technology use.

A study was considered relevant only when it showed evidence of structured cooperative learning with positive interdependence, because it is the key element of cooperative learning, such as shared group goals, peer support, or task interdependence. The inclusion of studies did not require the presence of all five cooperative learning elements, because doing so would have excluded studies that demonstrated cooperative learning only partially and would have prevented the review from identifying which elements were less frequently operationalised or clearly reported in the existing studies.

3.3 Selection Process

The entire selection process was documented in accordance with PRISMA 2020 guidelines. Overall, 564 studies were identified through the review search. After duplicate removal, 367 records remained to be screened according to their abstract and title. The entire screening process was conducted independently by two reviewers. For Exclusion Criterion 6, a standardised selection checklist was developed and used to guide the reviewers in determining whether the studies clearly reflected the required features. Any different selections were resolved by a third reviewer. Inter-rater reliability was assessed using Cohen’s κ coefficient for both screening phases based on the reviewers’ independent decisions before discussion (Table 3). By the end of the process, 25 studies were selected for inclusion.

Table 3: Inter-rater reliability results for study selection

Screening stage	Number assessed	Agreement	Disagreement	Cohen’s κ
Title, abstract, and keyword screening	367	348	19	.82
Full-text eligibility assessment	61	53	8	.73

The screening process was conducted in two phases. First, records were excluded at this stage when they clearly did not follow the six inclusion criteria. At this stage, 305 records were excluded, and 62 articles were retained for full-text screening. However, as one article could not be retrieved, a total of 61 articles

proceeded to the next stage. Subsequently, after full-text reading and screening, a total of 25 articles met the inclusion criteria and were included for further analysis.

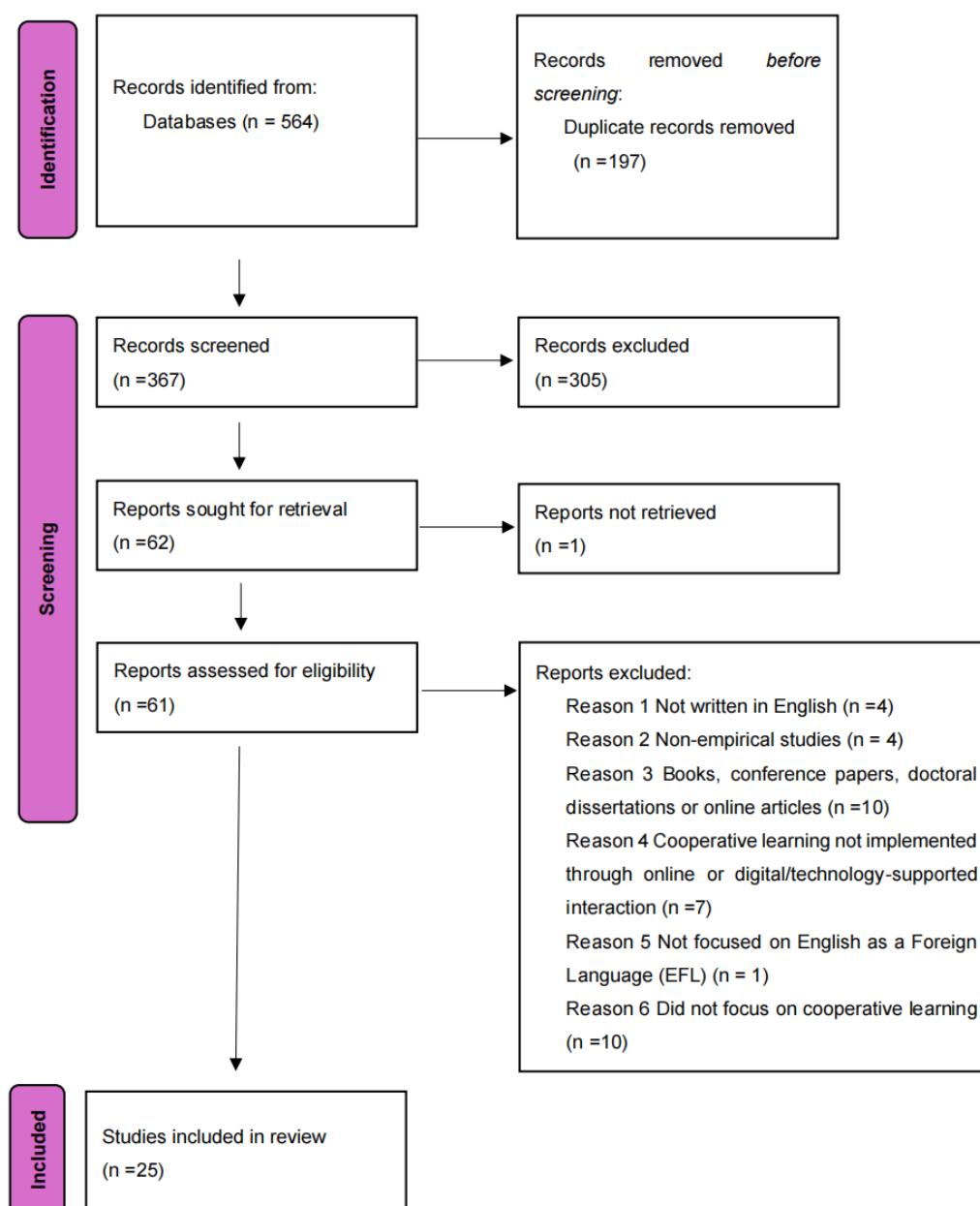


Figure 1: PRISMA flow diagram

3.4 Data Collection and Analysis

For analysis, the 25 studies were examined to determine the author and year, data collection method, sample size, participant level, technology used, and main language skill or learning focus. The studies covered a range of educational levels, including elementary, secondary school, and university. The analysis also involved noting the diverse digital environments, including mobile applications, online writing systems, online meeting tools and computer-based environments. The extracted data are presented in Table 4. Owing to heterogeneity in study designs, outcome measures, and statistical analyses, no common effect measure

was calculated and no meta-analysis was conducted. Following data extraction, studies were assigned to each synthesis according to the information they reported. The included studies contributed to the descriptive analysis, but only studies reporting relevant data were included in the syntheses of cooperative learning elements, learning outcomes, and implementation challenges. Only studies reporting inferential statistical results were included in the quantitative summary of effectiveness.

4. Results

4.1 Quantitative Overview of the Included Studies

An overview of the key features of the included studies is presented in Table 4 and the results start with a quantitative overview of the included studies.

Table 4: Overview of the key features of the included studies

Author (year)	Data collection method	Sample size	Learning stage of participants	Technology used	Language skill / focus
Lan et al. (2009)	Mixed methods	52	Elementary school	CAREER mobile-device-supported reading system / Tablet PCs	Reading
AbuSeileek (2012)	Quantitative	216	University	Computer-based environment	Integrated / general EFL proficiency (speaking + writing)
Kitchakarn (2012)	Mixed methods	33	University	Blogs	Writing
Kitchakarn (2014)	Mixed methods	35	University	Blogs	Writing
Ferreira et al. (2014)	Quantitative	24 + 24 across two experimental studies	University	Blended learning module; webpages; email; blog; JCLIC platform	Integrated / general EFL proficiency
Lan et al. (2015)	Quantitative	81	Elementary school	Computer-supported prewriting tools	Writing
Yang et al. (2015)	Mixed methods	48	University	Web-based cooperative learning system	English-to-Chinese translation
Wu (2016)	Qualitative	60	University	WebQuest / cQuestGarden	Writing
Demirci and Düzenli (2017)	Qualitative	18	University	Google Docs + Edmodo	Writing
Talakoub (2018)	Mixed methods	60	Private language institute; age 14–20	Mobile social networking; Telegram groups	Writing
Aghajani & Adloo (2018)	Mixed methods	70	University	Telegram	Writing

Awada et al. (2020)	Mixed methods	78 students + 4 instructors	University	WebQuest	Writing
Cherres Fajardo et al. (2020)	Qualitative	5 teachers and 3 students	University	WordEngine online vocabulary application; WhatsApp; Zoom conversations mentioned	Vocabulary
Each & Suppasetseree (2021)	Mixed methods	30	University-related programme; age 17–24	MBCL website; mobile phones; Kahoot; FlexiQuiz	Listening
Yassin et al. (2022)	Mixed methods	15	University	Computer-assisted cooperative learning	Reading
Çelik & Baran (2022)	Mixed methods	154 students + 7 instructors	University	Student Response System; Socrative; students' mobile phones	Vocabulary
Zheng & Zhou (2023)	Mixed methods	98	University	Chaoxing Online Class; Tencent Meeting; online presentation; teaching video creation; audiobook listening tasks; online submission via email	Affective / non-skill-specific outcomes
Fan & Chen (2023)	Quantitative	43	Elementary school	iPads; Keynote; images and video recording/editing tools	Speaking
Anggoro & Khasanah (2024)	Mixed methods	60	University	Technology-infused TGT; Kahoot; Quizizz; Socrative; Quizalize; Pear Deck; Nearpod; Facebook; online tools used with smartphones/tablets	Integrated / general EFL proficiency
Nasim et al. (2024)	Quantitative	30	Secondary school	Web-based CIRC; Facebook groups;	Reading
Dinh (2025)	Mixed methods	374 survey respondents; 16 interview participants	University	MOOCs; online communication tools such as Zalo and Google Meet mentioned in interviews	Affective / non-skill-specific outcomes
Nugroho et al. (2025)	Mixed methods	64	University	WhatsApp-integrated STAD; students' smartphones; WhatsApp group	Speaking / communicative competence

Al-Obaydi et al. (2025)	Qualitative	30	University	ChatGPT; AI-powered chatbot	Integrated / general EFL proficiency
Gusta et al. (2026)	Quantitative	724	University	Digital PBL-GI instruction; Google Docs; Mendeley; university LMS / Moodle	Writing
Liu & Thurston (2026)	Quantitative	78	University	Tencent Meeting; online video/audio communication; screen sharing	Writing

Figure 2 shows that 56% (n=14) of the studies applied a mixed-methods research design, while 28% (n=7) adopted quantitative methods. In contrast, purely qualitative studies accounted for 16% (n=4). with regard to data collection, all 25 reviewed studies employed multiple research instruments, including achievement or performance tests, pre-tests and post-tests, assessment rubrics, questionnaires, attitude or perception scales, interview protocols, reflective journal prompts, focus-group protocols, observation checklists, task protocols, and interaction coding schemes. Several studies also used supplementary data sources, such as online postings, platform-generated data, written products, and recorded interaction transcripts.

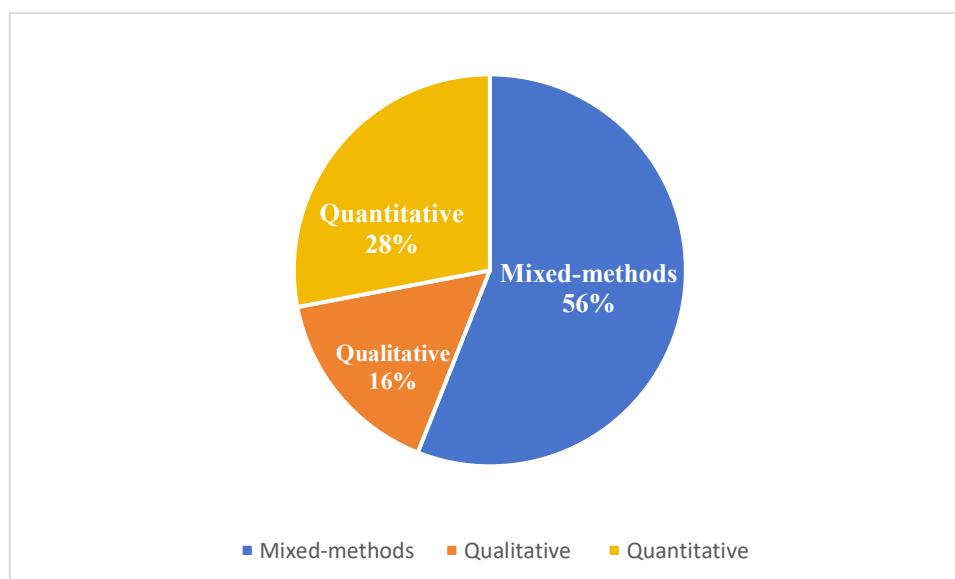


Figure 2: Distribution of reviewed articles by methodology

As shown in Figure 3, university contexts dominated the reviewed studies, with 20 out of 25 studies focusing on learners in a university context. By contrast, only three studies were conducted in elementary schools, and only one study was conducted in a secondary school and a private language institute.

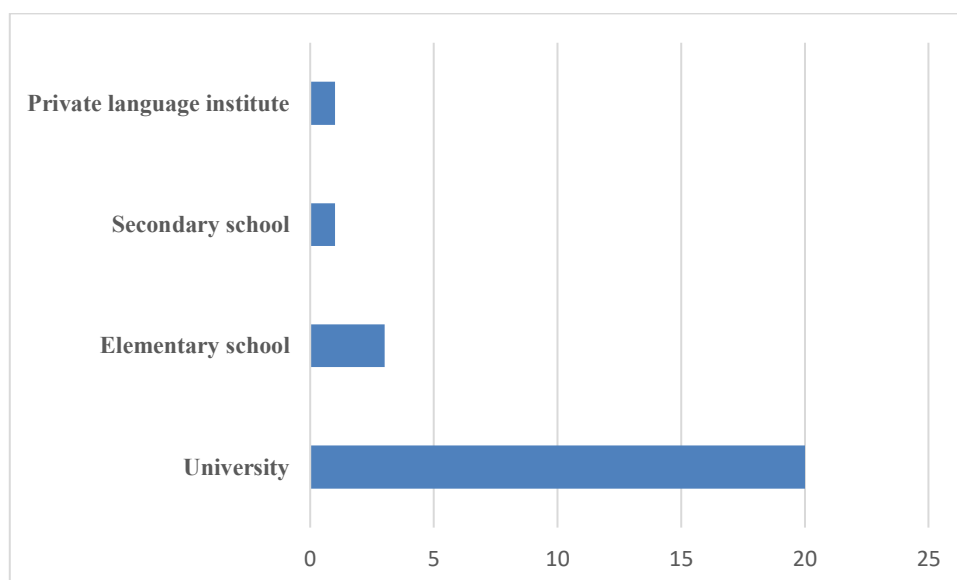


Figure 3: Distribution of reviewed studies by educational level

In terms of primary language focus, writing dominated the reviewed studies, with 10 of the 25 studies focusing on writing, accounting for 40% of the total. Integrated or general EFL proficiency followed with four studies, and reading with three studies. Vocabulary, speaking, and affective outcomes were represented by two studies each, while listening and translation appeared in only one study each.

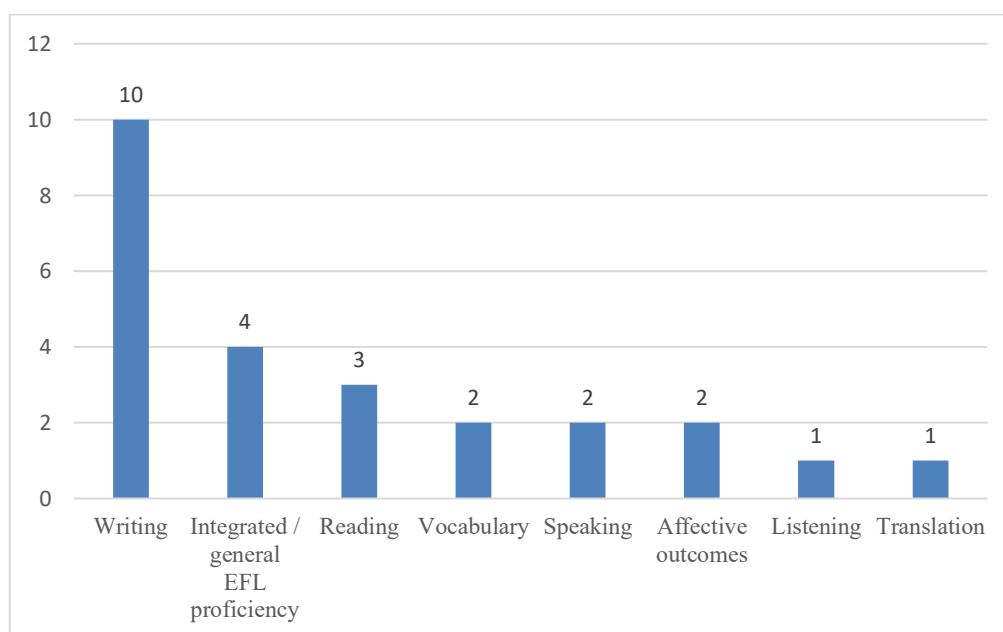


Figure 4: Distribution of primary language focus

The included studies were further classified into three delivery modes according to the dominant environment in which cooperative learning activities were implemented. As shown in Table 5, technology-supported face-to-face cooperative learning was the most common mode, appearing in 10 studies. Fully online cooperative learning was identified in 8 studies, while 7 studies adopted

blended delivery modes. The digital tools differed not only in terms of platform type but also in terms of instructional function. Communication platforms supported synchronous or asynchronous discussion, collaborative documents enabled joint production and revision, learning platforms facilitated resource sharing and task management, and response systems supported formative assessment and participation tracking. AI-supported tools provided language input and task assistance, although their pedagogical value depended on how they were embedded in structured cooperative activities. The delivery modes reflected different forms of online cooperation.

In fully online settings, group discussion, peer feedback, joint writing, and task completion were conducted mainly through digital platforms, such as Telegram, blogs, MOOCs, and Tencent Meeting. In blended settings, online tools were used to extend classroom instruction through resource sharing, group discussion, cooperative production, or follow-up activities. In technology-supported face-to-face settings, cooperation occurred primarily in the classroom, while digital tools supported activities such as response collection, peer feedback, shared writing, formative assessment, and language practice.

Table 5: Delivery modes for cooperative learning

Delivery mode	Number of studies	Typical tools
Fully online	8	Blogger, Telegram, WhatsApp, WordEngine, Chaoxing online class, Tencent Meeting, MOOCs, web-based cooperative translation system
Blended	7	Mobile social networking, mobile-blended platform, WebQuest, web-based CIRC, WhatsApp-integrated STAD, Google Docs, Moodle/LMS
Technology-supported F2F	10	CAREER, CACL, CSCL tools, WebQuest, SRS, digital storytelling tools, Kahoot, Quizizz, Pear Deck, ChatGPT

As shown in Table 6, positive interdependence, individual accountability, and promotive interaction were identified in all 25 studies, either explicitly or implicitly. Positive interdependence was explicitly reported in 20 studies and implied in 5, while promotive interaction was explicitly reported in 23 studies and implied in 2. Individual accountability was explicitly reported in 16 studies and implied in 9. In comparison, small-group skills and group processing were less reported. Small-group skills were explicitly reported in only 3 studies, implied in 21, and not clearly reported in 1. Group processing was explicitly reported in 7 studies, implied in 14, and not clearly reported in 4. These results indicate that the five principles were not reported with equal clarity across the reviewed studies.

Table 6: Summary of the operationalisation of the five cooperative learning principles

Cooperative learning principle	Explicitly reported (n)	Implied (n)	Not clearly reported (n)	Common operational indicators
Positive interdependence	20	5	0	Shared group goals, joint products, team rewards, reciprocal task dependence, common performance targets
Individual accountability	16	9	0	Individual test, individual posting, role responsibility, individual product, contribution visibility
Promotive interaction	23	2	0	Peer feedback, co-writing, discussion, negotiation, commenting, problem solving, consensus building
Interpersonal and small-group skills	3	21	1	Role training, teamwork strategy training, feedback training, communication norms, cooperation guidance
Group processing	7	14	4	Group reflection, self-/group appraisal, process logs, post-task review, monitoring group functioning

Note: explicit = clearly described in the study; implied = inferable from the instructional procedure; not clearly reported = insufficient information provided.

4.2 Reported Outcomes of Online Cooperative Learning in EFL Contexts

The reported outcomes were synthesised into two main domains: language-related performance and affective and motivational outcomes.

4.2.1 Effects on Language-Related Performance

Seventeen studies applied inferential statistics to language-related achievement or performance. Sixteen reported statistically significant positive gains or associations. The exception was Aghajani and Adloo (2018), in which both cooperative writing groups improved significantly over time, but the Telegram group did not significantly outperform the face-to-face cooperative group on the posttest ($p = .393$). Nine comparative or factorial studies provided relatively stronger evidence of positive outcomes in reading, integrated proficiency, writing, vocabulary, speaking, or communicative competence (AbuSeileek, 2012; Awada et al., 2020; Çelik & Baran, 2022; Fan & Chen, 2023; Ferreira et al., 2014; Lan et al., 2009, 2015; Nugroho et al., 2025; Talakoub, 2018). Seven additional studies

reported significant positive results, although their research designs may limit causal interpretation (Anggoro & Khasanah, 2024; Each & Suppasetsee, 2021; Gusta et al., 2026; Kitchakarn, 2012, 2014; Nasim et al., 2024; Yang et al., 2015).

Writing contributed the largest performance evidence base. Six of the seven writing-focused studies applied inferential analyses with significant positive findings. In the remaining study, both groups improved significantly, but the online group did not significantly outperform the students who experience traditional face-to-face cooperative activity. Positive findings also extended to reading (Lan et al., 2009; Nasim et al., 2024), vocabulary (Çelik & Baran, 2022), listening (Each & Suppasetsee, 2021), speaking and communicative competence (Fan & Chen, 2023; Nugroho et al., 2025), translation (Yang et al., 2015), and general EFL achievement (Anggoro & Khasanah, 2024; Ferreira et al., 2014).

Qualitative and process-focused studies also indicated that online cooperative learning supported vocabulary strategy use, formative feedback, language practice, and attention to language form. However, those studies did not directly demonstrate that such support caused measurable achievement gains (Al-Obaydi et al., 2025; Cherres Fajardo et al., 2020; Demirci & Düzenli, 2017; Liu & Thurston, 2026; Wu, 2016).

4.2.2 Affective and Motivational Outcomes

Sixteen studies reported learner affective, motivational, or attitudinal outcomes, and one additional study examined instructor perceptions. Yang et al. (2015) found significant increases in translation interest and self-efficacy; Zheng and Zhou (2023) reported a significant increase in enjoyment; Dinh (2025) reported significant effects of cooperative learning and behavioural factors on student satisfaction, but the pathway linking motivation, participation, and attitude was not significant ($p = .157$); Gusta et al. (2026) reported that self-efficacy in writing significantly mediated the relationship between digital PBL-GI instruction and argumentative writing performance.

Additional evidence from interviews, post-intervention questionnaires, or reflective materials indicated that learners held positive attitudes towards the approach and indicated higher levels of motivation, satisfaction, confidence, as well as a greater willingness to use similar technology-supported cooperative learning approaches in future writing activities (Aghajani & Adloo, 2018; Al-Obaydi et al., 2025; Anggoro & Khasanah, 2024; Demirci & Düzenli, 2017; Each & Suppasetsee, 2021; Kitchakarn, 2012, 2014; Nugroho et al., 2025). Some studies also found that alongside positive perceptions, learners experienced frustration, unequal participation, or technology-related concerns (Dinh, 2025; Talakoub, 2018).

4.2.3 Engagement and Interaction Outcomes

Nine studies examined engagement and interaction as study outcomes. Quantitative findings showed that the higher the degree of cooperation, the higher the level of speaking and digital storytelling performance (Fan & Chen, 2023). Engagement significantly mediated the relationship between digital PBL-GI instruction and argumentative writing performance (Gusta et al., 2026), and

the way students were paired according to their EFL levels significantly influenced how often cognitive conflicts occurred and how successfully they were resolved during online cooperative writing tasks (Liu & Thurston, 2026). However, they also found no significant pair-group differences in the distribution of lexical or grammatical conflict episodes. Qualitative and mixed-methods findings documented several forms of learner engagement and peer interaction, such as greater concentration and active participation, autonomous learning, peer feedback, team support, and coordinated communication (Cherres Fajardo et al., 2020; Çelik & Baran, 2022; Nugroho et al., 2025).

4.3 Common Challenges in Online Cooperative Learning in EFL Contexts

Despite the reported benefits, the reviewed studies identified three major challenges in implementing online cooperative learning. First, technological-pedagogical fit remained problematic. Unstable internet access, delays of asynchronous tasks, limitations due to devices, differences in digital literacy, or unsuitable platform functions disrupted cooperative progress (Dinh, 2025; Talakoub, 2018; Yassin et al., 2022). Technology facilitated groupwork online, but did not automatically generate meaningful interaction or language practice without appropriately designed activities.

Second, effective implementation depended on pedagogical readiness and scaffolding. Several studies emphasised the need for clear instructions, appropriate group settings, role assignment, cooperative-skills training, teacher monitoring, and structured support for learners with different language proficiency and technological experience (Awada et al., 2020; Dinh, 2025; Nasim et al., 2024). Insufficient preparation or guidance could result in confusion, anxiety, limited interaction, and overdependence on more capable group members.

Finally, structured participation and accountability remained a recurring concern. Uneven contributions to the group goals, delayed responses, weak peer support, and difficulties in identifying individual contributions were reported across online and blended settings (Dinh, 2025; Liu & Thurston, 2026; Nugroho et al., 2025). These findings indicate that online cooperative learning requires clear rules for participation and visible individual responsibilities for instructors to monitor and evaluate processes that group members are engaging with.

5. Discussion

5.1 Methodological and Contextual Characteristics

Regarding RQ1, the literature was concentrated in university settings, relied predominantly on mixed-methods designs, and focused mainly on writing. The studies were conducted across fully online, blended, and technology-supported face-to-face settings, indicating considerable variation in the degree and function of technological mediation.

Twenty of the 25 studies involved university students. This concentration may be related to university students' greater access to digital technologies, stronger independent-learning capacity, and the relative ease of conducting technology-supported interventions in university education. It limits the transferability of the findings to younger learners and students with lower language proficiency or

digital readiness, such as those in secondary schools or vocational colleges. The prevalence of mixed-methods research reflects the multidimensional nature of online cooperative learning. Achievement tests measured language performance, while questionnaires, interviews, observations, and interaction records captured affective and cooperative processes. However, the use of multiple instruments did not necessarily produce strong causal evidence, particularly when studies relied on small samples, one-group designs, or self-reported outcomes. These three delivery modes should not be treated as equivalent, because the degree of online mediation influences how learners communicate, coordinate tasks, experience/receive teacher support, and make individual contributions visible.

Fully online studies used digital platforms as the main environment for cooperation, as illustrated by Telegram-supported writing (Aghajani & Adloo, 2018) and Tencent Meeting-based dyadic writing (Liu & Thurston, 2026). In blended studies, tools such as WhatsApp, Google Docs, and learning management systems extended cooperative activities beyond classroom instruction (Gusta et al., 2026; Nugroho et al., 2025). In contrast, technology-supported face-to-face studies used tools such as student response systems and ChatGPT to structure particular stages of classroom interaction and group production (Al-Obaydi et al., 2025; Fan & Chen, 2023). Platform choice also varied according to local availability and the instructional functions required. For instance, Chinese-context studies used familiar local platforms such as Tencent Meeting and Chaoxing (Xuexitong), while studies in other settings adopted Telegram, WhatsApp, Google Docs, or blogs for communication.

5.2 Reported Outcomes and Strength of Evidence

Regarding RQ2, most studies reported positive language-related, affective, or cooperative outcomes, although the strength of evidence varied. There is relatively stronger support for developments in writing, reading, vocabulary, speaking and general EFL achievement. The large number of studies on EFL writing also reflects the fact that writing competence is a critical skill for university students (Zhang et al., 2023), which may also reflect the close alignment between online environments and the cooperative writing process. Written products are visible and traceable, making it possible to document the contributions of students. Such visibility can support the implementation of the five core elements of cooperative learning, particularly individual accountability, for example by allowing instructors to assess students based on the sections of a text for which they were responsible. In contrast, speaking and listening activities may require more immediate coordination and may be more difficult to monitor and assess in online group settings.

From the perspective of social interdependence theory, shared goals and mutual support may strengthen learners' sense of belonging, responsibility, and willingness to remain engaged in learning. This may provide an explanation for the increased participation in motivation, enjoyment, confidence, self-efficacy, satisfaction, and willingness. However, much of the affective evidence was derived mainly from learner questionnaires, interviews, or written reflections (Dinh, 2025; Each & Suppasetseree, 2021; Kitchakarn, 2012; Nugroho et al., 2025;

Yassin et al., 2022). Therefore, it should not be treated as direct evidence of language achievement or causal effects. Peer feedback may support both performance and positive learner perceptions, although its perceived benefits may not extend equally to broader language development (Al-Samiri & Bukhari, 2025). Engagement and interaction outcomes indicated that active peer participation and a higher degree of cooperation may encourage learners to use the language more actively and improve classroom engagement (Katawazai & Saidalvi, 2020). However, these effects may be influenced by several factors, including grouping arrangements, learners' EFL skill level, teacher scaffolding, and individual accountability. This may be one of the reasons why online cooperative learning sometimes outperformed conventional instruction but did not always produce better outcomes than face-to-face cooperative learning.

5.3 Uneven Operationalisation of the Five Cooperative Learning Elements

In answer to RQ3, the five cooperative learning principles were not operationalised equally. Positive interdependence was identified in all included studies because it was treated as the core inclusion requirement. It was commonly established through shared goals, joint products, team rewards, complementary tasks, or common performance targets. The weakest elements were small-group skills and group processing. This may reflect either limited implementation of these elements or insufficient reporting of the instructional procedures in the original studies. This imbalance may help explain the challenges of unequal participation, weak peer support and dependence on stronger learners. The actual instructional procedures must be examined to determine how each element was implemented.

5.4 Common Implementation Challenges

With regard to RQ4, the challenges identified were interrelated rather than being independent. From an educational psychology perspective, structured support may also influence participation by strengthening learners' self-efficacy and self-regulation. Adiyono et al. (2025) found that self-regulated learning and social support enhanced EFL learners' self-efficacy, which in turn reduced academic procrastination. This provides a relevant explanatory lens for the present findings: unclear roles, insufficient scaffolding, and weak peer support may reduce learners' confidence, thereby contributing to delayed or uneven participation in cooperative online tasks. Technology supported learning only when its functions were aligned with the pedagogical purpose and cooperative task. If digital tools did not fit the cooperative task, they could make group work more difficult without improving language interaction (Dinh, 2025b; Mishra & Koehler, 2006).

These demands were particularly difficult for learners with lower proficiency or limited digital experience. From a scaffolding perspective, insufficient instructional support may lead to anxiety, withdrawal, or excessive reliance on more capable peers. Positive interdependence may create a shared goal, but effective cooperation also requires individual accountability, interpersonal skills, and group processing. When these elements are weakly structured, online group work may remain cooperative in form but uneven in practice. For example, group processing can be implemented by asking learners to reflect on whether they fulfilled their responsibilities and how the group could improve in future tasks.

5.5 A Conceptual Framework for Online Cooperative Learning in EFL Contexts

Based on the cross-study synthesis, Figure 5 presents a review-derived conceptual framework for online cooperative learning in EFL contexts. The framework organises the reviewed evidence into five interrelated components: the online cooperative EFL learning environment, instructional configuration, the five cooperative learning elements, learning outcomes, and common challenges.

The online cooperative EFL learning environment provides the technological conditions through which instructional activities are implemented, including online platforms, digital tools, and systems that support group communication and shared work. Within this online environment, the instructional configuration should be designed according to the delivery mode, learner characteristics, targeted language areas, and the cooperative learning structures adopted. These instructional decisions need to follow the five cooperative learning elements. The effectiveness of digital language learning also depends on context-responsive design and appropriate teacher facilitation (Duan et al., 2026).

When these components are appropriately aligned, online cooperative learning may contribute to three broad outcome domains: language-related performance, affective and motivational outcomes, and engagement and interaction outcomes. However, these outcomes are also shaped by three major implementation challenges, namely technological-pedagogical fit, pedagogical readiness and scaffolding, and structured participation and accountability. The proposed framework also positions the five cooperative learning elements as the central pedagogical mechanisms linking online instructional design with language-related, affective, and interactional outcomes.

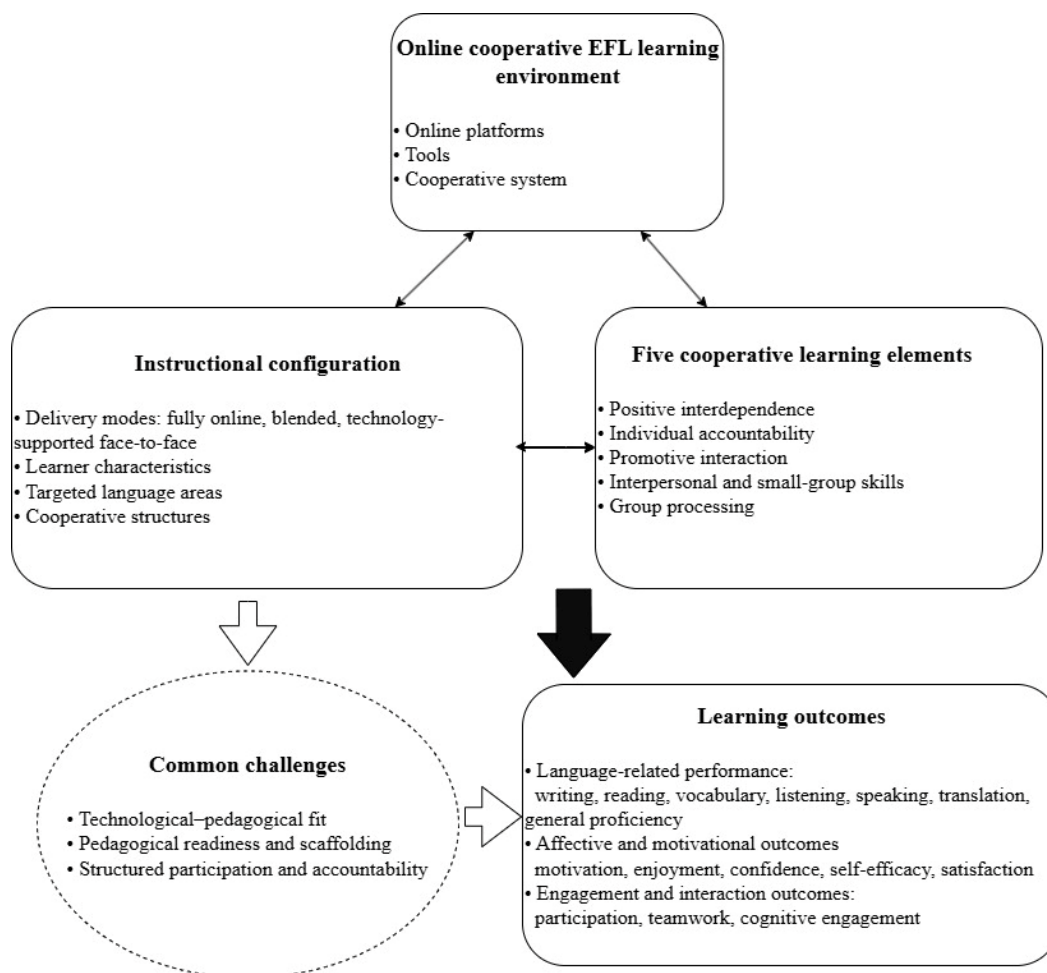


Figure 5: Conceptual framework for online cooperative learning in EFL contexts

5.6 Implications for Instructional Design

The synthesis of the 25 studies included in this paper for analysis indicates that instructional design is the core element of effective implementation of online cooperative EFL learning. Online technologies primarily provide an instructional environment rather than serving as the direct source of practical effectiveness. Therefore, course design should take learners' language proficiency, digital literacy, and specific learning needs into account as well as integrating cooperative learning approaches purposefully to support language development, learner participation, and peer interaction. All five core cooperative learning elements should be adapted for cooperative activities, with particular attention paid to the less explicitly operationalised elements of interpersonal and small-group skills and group processing.

5.7 Recommendations for Future Research

Future research should clearly operationalise and report on all five cooperative learning elements, particularly interpersonal and small-group skills and group processing, which were less clearly described in the reviewed studies. Clearer reporting of how each element is incorporated into instructional procedures would improve the transparency and replicability of online cooperative learning research. Besides, future studies should also examine a wider range of educational

settings and language areas, including listening, reading, speaking, and vocabulary development, with a greater focus on learners with lower language proficiency or limited digital literacy. Methodologically, researchers should use appropriate comparison groups, longer intervention periods, multiple measurement points, and delayed post-tests where feasible. Effect sizes, individual contributions, and the quality of learner interactions should also be reported more clearly to determine which cooperative activities are most effective for different learners and instructional contexts.

6. Limitations of the Review

This review has several limitations. First, it included only empirical English-language journal articles, which may have excluded relevant studies published in other languages or in other forms such as conference papers, book chapters, dissertations. Second, the number of studies included was relatively small, and the reviewed literature was concentrated mainly in university settings, which limits the extent to which the findings can reflect the broader range of EFL learning contexts.

Third, the screening process focused on studies examining online or technology-supported cooperative learning. Potentially relevant studies may have been excluded if they were labelled as “collaborative learning” or did not provide sufficient detail to determine whether their instructional procedures reflected cooperative learning elements. Although the MMAT was used to appraise methodological quality, no studies were excluded in response to these appraisal results. Studies with methodological limitations therefore remained in the synthesis and may have influenced the overall conclusions.

7. Conclusion

Following the PRISMA guidelines, this literature review synthesised 25 empirical studies published up to June 2026 on online cooperative learning in EFL contexts. Theoretically, the findings suggest that online cooperative learning should be understood not solely in terms of named cooperative structures, but in terms of how the five cooperative learning elements are integrated into online EFL instruction. Research on online cooperative learning has focused primarily on university contexts and EFL writing. This pattern may suggest that the approach is easier to implement in settings where learners have greater academic proficiency and digital readiness, and where participation, individual contributions, and intervention procedures can be more clearly organised and tracked. Most studies adopted mixed methods designs and used multiple instruments to examine both learning outcomes and learners’ experiences.

Overall, the findings suggest that online cooperative learning can support language skills proficiency, motivation, and classroom engagement. However, it did not consistently produce better outcomes than traditional face-to-face instruction. This variation indicates that effectiveness depends less on the use of technology itself than on technological-pedagogical fit, pedagogical readiness and scaffolding, and clearly structured participation and individual accountability. This interpretation is also reflected in the review-derived

conceptual framework, which positions the five cooperative learning elements as important mechanisms linking the online learning environment and instructional configuration with language-related, affective, and interactional outcomes. Without adequate consideration of learner and contextual needs, or without clear operationalisation of the five elements, online group work may not develop into effective cooperative learning. The review further showed that most studies emphasised positive interdependence, whereas interpersonal and small-group skills and group processing were less clearly implemented and reported. This imbalance highlights the need for future research and instructional design to operationalise all five cooperative learning elements more explicitly, and to examine their effectiveness in under-represented contexts, particularly among learners with lower proficiency and in language areas beyond writing.

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