

Assisted Cooperative Learning in Junior High English Writing as a Pedagogical Model

He Hu

School of Foreign Languages, China West Normal University, Nanchong 637009, China

Abstract: Cooperative learning in junior high English writing instruction faces three structural dilemmas: lack of linguistic scaffolding, delayed feedback, and the masking of individual differences. The introduction of artificial intelligence offers new possibilities to address these issues, yet the question of how AI should be integrated without undermining the democratic deliberative spirit of cooperative learning remains underexplored. Drawing on the democratic group system and the six-stage inquiry framework of cooperative learning, this study proposes the principle of AI as a negotiatory scaffold, delineates three boundaries (non-replacement of independent thinking, non-disruption of democratic negotiation, and adherence to the non-intervention principle), and analyzes three underlying mechanisms: reallocation of cognitive load, acceleration of feedback loops, and generation of metacognitive activities through contestability. On this basis, a pedagogical model for AI-assisted cooperative learning in writing is constructed, structurally coupling the six stages of cooperative learning with AI scaffolding functions.

Keywords: Cooperative learning, AI-assisted instruction, junior high English, writing pedagogy, negotiatory scaffold.

1. Introduction

Junior high English writing instruction has long been confronted with a structural problem: students lack authentic communicative audiences and writing motivation; teacher feedback is severely delayed; and the wide proficiency gap within a class is difficult to accommodate in uniform teaching. Traditional writing pedagogy typically follows a one-way path: teacher assigns a topic, students write, and teacher corrects (Tang, 2026) [11]. Although this closed loop appears logical, it reveals obvious limitations in practice. Students write in a vacuum, with the teacher as the sole reader of their texts, and corrections often return days later, by which time students have forgotten their original thought processes and errors have become entrenched through delay. This predicament does not stem from teachers' lack of effort, but from the inherent structure of the instructional model.

The introduction of cooperative learning was once regarded as a promising remedy (Zhang, 2026) [17]. Emphasizing democratic negotiation, group inquiry, and judicious teacher intervention, cooperative learning theoretically provides students with authentic communicative contexts and peer support. Within this framework, students engage with real-world problems through alternating independent and group research, culminating in a joint analysis of outcomes and processes. The core premise is that knowledge is not transmitted unidirectionally by the teacher but is generated through collective experience. However, extensive classroom practice reveals that cooperative learning has not fully realised its potential in writing classes. Group discussions often remain superficial; students lack sufficient linguistic resources to sustain meaningful negotiation; the teacher's principle of minimal intervention frequently degenerates into non-intervention, allowing low-level repetitions to go uncorrected; and the critical phase of process analysis is often rushed due to the absence of analysable materials.

Meanwhile, artificial intelligence is rapidly reshaping language education. Automated proofreading systems can instantly detect grammatical and spelling errors; generative

AI can offer vocabulary, sentence pattern suggestions, and writing frameworks; online collaborative platforms can record complete traces of group interaction (Wei & Li, 2023; Zhou, 2026) [14] [18]. These technical capabilities seem to correspond precisely to the difficulties cooperative learning encounters in writing instruction. Yet a fundamental question remains insufficiently addressed: in what manner should AI intervene in cooperative learning so as to enhance pedagogical effectiveness without compromising its most valuable democratic deliberative spirit (Yang, 2026) [16]? This study attempts to answer this question by focusing on the theoretical interface between cooperative learning and AI assistance, constructing an interpretable and transferable pedagogical model, and discussing its internal logic and practical limits.

2. Core Logic of Cooperative Learning and Dilemmas in Writing Instruction

Cooperative learning is not simply the random grouping of students for a group task; it is a teaching organisation with clear structural features. From established frameworks, three structural characteristics can be distilled (Johnson & Johnson, 1999) [8]. The first is the democratic group system. Norms within a cooperative group are not externally imposed by the teacher but originate from group experience or are at least endorsed by the group. This means that student negotiations carry genuine decision-making power, and the teacher's authority is consciously suspended. Apart from role differentiation, teachers and students enjoy equal discursive status in inquiry activities, with progress based on reason and negotiation rather than command and obedience.

The second characteristic is the problem-driven inquiry process. Cooperative learning starts with an authentic problematic situation. Students respond to a planned or unplanned problem, then analyse the task, organise research, conduct independent and group studies, and finally analyse outcomes and processes before initiating new activities. The core of this process is that students' cognitive activities

revolve around genuine problems rather than executing a preset sequence of operational steps. Students are both discoverers of problems and constructors of solutions.

The third characteristic is the teacher's measured intervention. The teacher's role can be summarised as three duties and two constraints. Teachers should provide assistance for group activities, participate in activities and guide students' attention towards potential educational ends, and monitor activities to help students form personal opinions. At the same time, teachers should add as few subjective views as possible, avoid intervention unless major difficulties arise, and maintain an equal relationship with students in a climate of reasoned negotiation (Vygotsky, 1978) [12]. These three characteristics together constitute the hard core of cooperative learning. Any adaptation or technological embedding that violates these characteristics is likely to degenerate into formalism.

Applying these characteristics to junior high English writing instruction, however, encounters a series of structural dilemmas. These are not mere operational shortcomings but tensions inherent in the logic of cooperative learning versus the logic of writing pedagogy. The first dilemma is inefficient negotiation due to lack of linguistic scaffolding (Cheng, 2025) [2]. Cooperative learning presupposes that students possess basic inquiry skills, but junior high writers are precisely in a critical period of language development. When groups are asked to discuss how to organise the structure of an essay or which vocabulary is more suitable for describing a scene, students often cannot engage in substantive negotiation because of insufficient linguistic resources (Tang, 2026) [11]. Discussion degrades into vacuous exchanges, and the teacher's minimal intervention here becomes an amplifier rather than a virtue.

The second dilemma is the tension between delayed feedback and the closed nature of cooperative learning. The fifth stage of cooperative learning requires analysis of outcomes and processes, but in writing instruction, outcome analysis presupposes effective feedback. In traditional classrooms, the teacher is the sole source of feedback, and the correction cycle delays this analysis phase to the next lesson or even later. The cooperative learning loop is thus broken; students cannot gain cognitive progress within the continuity of group experience, and when feedback finally arrives, the learning context has already shifted (Han, 2026) [5].

The third dilemma is the masking of individual differences within groups. The democratic system of cooperative learning emphasises the generation of collective experience, but writing instruction precisely needs to attend to the uniqueness of individual linguistic output. In group work, more proficient students often dominate the direction and conclusions of discussion, while weaker students may be overlooked in the group consensus. Following the principle of minimal intervention, teachers find it difficult to provide targeted support for individual differences, and those who need help most are exactly the ones most likely to remain invisible in group activities (Cheng, 2025; Zhang, 2026) [1] [17].

The common implication of these three dilemmas is that cooperative learning requires an external support system capable of providing immediate linguistic scaffolding, generating rapidly analysable feedback, and simultaneously preserving democratic negotiation. Artificial intelligence possesses these functional features.

3. Boundary Positioning and Mechanism Analysis of AI Assistance

Before introducing AI into cooperative learning writing instruction, its non-transgressible boundaries must be clearly defined. These boundaries are not technical limitations but educational prescriptions based on the core ethos of cooperative learning. The first boundary is that AI cannot replace students' independent thinking (Wei, 2023) [14]. AI may offer vocabulary suggestions, sentence templates, and grammar correction options, but the ultimate choice and judgement must be made by individual students or group negotiation. AI output should be positioned as discussable reference rather than unquestionable authority (Wei, 2023) (Huang & Wang, 2025; Zhou, 2026) [7] [18]. The second boundary is that AI cannot disrupt democratic negotiation within the group. AI feedback should be openly accessible to all group members rather than delivered privately to an individual student, thus preventing AI from becoming an arbiter overriding the group. The group has the right to reject, modify, or selectively adopt any AI suggestion. The third boundary is that AI cannot violate the teacher's principle of minimal intervention. AI is not a proxy for the teacher; teachers should not delegate instructional decision-making to AI, nor should they abandon observation and judgement of group interaction because of AI. The purpose of AI intervention is to enable teachers to focus more precisely on genuine difficulties, not to reduce teachers' workload (Yan, 2024) [15].

Within these boundaries, AI's function in cooperative learning writing instruction can be positioned as a negotiable scaffold (Wei, 2023) [14]. This concept encompasses three layers. First, AI provides cognitive scaffolding to reduce linguistic load (Linda, 1981) [4]. The main difficulties for junior high writers lie at the formal linguistic level, including vocabulary selection, grammatical accuracy, and syntactic variety (Hou, 2024) [6]. AI can process these low-level issues in real time, allowing students to focus their group discussion on higher-order tasks such as content logic, expressive effect, and audience awareness. This is not replacing students' thinking but freeing cognitive resources for questions that only humans can address (Huang, 2025) [7].

Second, AI generates process-oriented feedback to support group reflection. Traditional cooperative learning lacks analysable materials in the outcome-and-process analysis stage; students' discussions often linger on vague judgements. AI can automatically produce statistics on common errors, lexical richness, and cohesive device usage for each group's writing, turning these data into objective bases for group reflection (Wang, 2025) [13]. Student discussion shifts from fuzzy feelings to specific issues (Flower & Hayes, 1981; Ren et al., 2024) [4] [10].

Third, AI maintains contestability to preserve negotiation space. Unlike conventional instructional software, generative AI produces open and non-deterministic outputs; the same prompt can yield multiple responses, and different AI tools may give divergent feedback (Mao et al., 2024; Wei & Li, 2023) [9] [14]. This uncertainty is often regarded as a flaw in traditional instruction, but in cooperative learning it becomes an educational resource. When AI suggestions are contested or different tools provide inconsistent feedback, students are compelled to revisit language rules themselves for judgement and discussion. This process of evaluating whether AI is

correct is essentially metacognitive language learning, whose educational value often extends beyond the writing task itself (Chen, 2024; Yang, 2026) [1] [16].

From a mechanistic perspective, the potential effectiveness of AI-assisted cooperative learning involves three mechanisms. The first is the reallocation of cognitive load. Writing is a highly cognitively demanding task (Flower & Hayes, 1981) [4]. In traditional cooperative learning, students simultaneously handle content planning, linguistic expression, and negotiation communication – an overload for junior high learners whose language skills are still developing. By undertaking part of the linguistic expression work (including real-time proofreading and vocabulary suggestions), AI frees cognitive resources for content planning and negotiation. The second mechanism is the acceleration and deepening of feedback loops. AI compresses the feedback cycle from days to minutes (Huang & Wang, 2025; Yan, 2024) [7] [15]. Students receive immediate grammatical and spelling diagnoses upon completing a first draft, and these diagnoses serve as starting points and bases for peer evaluation. More importantly, AI's statistical analysis of common errors across the whole class transforms feedback from a two-dimensional teacher-student relation into a multi-dimensional negotiation network involving individual, group, whole class, and AI (Wang & Wang, 2025) [13]. The third mechanism is metacognitive activities triggered by contestability. When AI suggestions are disputable, students must mobilise their own linguistic knowledge to make judgements, and this process is itself deep learning (Feng, 2024) [3].

4. Construction of the Pedagogical Model

Based on the above analysis, this study proposes a pedagogical model for AI-assisted cooperative learning in writing. The model structurally couples the six-stage framework of cooperative learning with the negotiable scaffolding function of AI (Johnson & Johnson, 1999) [8]. It must be emphasised, however, that this is not a fixed procedure to be executed step by step, but a referential framework that can be flexibly adjusted according to specific teaching contexts.

Stage 1 – Presenting the problem situation: The teacher presents the writing task, while AI simultaneously generates multiple versions of topic materials and difficulty-differentiated sample references. This design responds to cooperative learning's requirement for authentic problems, while the diversified materials provided by AI respect individual differences – students at different proficiency levels can receive differentiated initial support under the same writing task.

Stage 2 – Students responding: Students engage in individual preliminary brainstorming. AI provides real-time vocabulary and sentence pattern suggestions, but these are presented as a set of options rather than a single “correct” answer. Students must judge and choose according to their own expressive intentions, and this decision-making process is itself a crucial part of language learning (Zhou, 2026) [18].

Stage 3 – Analysing the task and organising research: Groups discuss the structural requirements of the writing task. AI may offer framework templates (e.g., beginning-development-ending for narratives), but the group has the right to modify, adjust, or even completely restructure the framework. The key is not whether the AI-provided

framework is used, but that the group forms its own understanding of the task through discussion.

Stage 4 – Independent and group research: Students complete their first drafts independently, and AI performs automated proofreading, flagging grammatical and spelling issues. On the basis of AI feedback, groups conduct peer evaluation, comparing AI's judgements with human judgements, and develop their own revision plans (Ren et al., 2024; Yan, 2024) [10] [15]. The essence of this stage is human-AI collaborative judgement; through comparison and discussion, students gradually develop their own linguistic judgement.

Stage 5 – Analysing outcomes and processes: The whole class reviews AI-generated statistics of common errors and vocabulary usage reports. Teachers and students jointly analyse the group's learning bottlenecks – what difficulties we encountered, which errors recurred, and how to improve (Han, 2026; Mao et al., 2024) [5] [9]. This is the critical stage of cooperative learning; AI's role is not to provide answers but to supply materials and evidence for discussion.

Stage 6 – Initiating new activities: AI generates personalised practice suggestions based on the current writing performance, and groups collaboratively complete an extended task. Continuity of learning is thereby ensured – the endpoint of one writing task becomes the starting point for the next (Yang, 2026) [16].

The core innovation of this framework lies not in simply superimposing AI tools at each stage, but in ensuring that every AI intervention follows the principle of negotiable scaffolding: providing resources without replacing judgement, generating feedback without monopolising evaluation, and reducing load without eliminating challenge. AI exists not to make students' work easier, but to enable them to confront more demanding authentic problems.

5. Discussion

In the AI-assisted cooperative learning model, the teacher's role undergoes a fundamental change – not marginalisation, but refocusing. The principle of minimal intervention acquires new meaning after AI integration. In traditional classrooms, minimal intervention often meant that teachers found it difficult to identify when a genuine difficulty arose. With AI, teachers can access common-error statistics and group evaluation records, enabling more precise identification of real obstacles encountered by student groups. Thus, minimal intervention shifts from passive “doing less” to active “doing selectively.” Specifically, teacher intervention is concentrated in three types of situations: when a group cannot reach consensus on accepting or rejecting AI suggestions; when AI repeatedly mis-flags the same type of issue, indicating systematic blind spots; and when students have completed technical aspects of the task but lack meaning-level refinement. In these moments, teacher intervention does not disrupt cooperative learning but deepens and enriches group experience.

Every pedagogical model has its boundaries, and the model proposed here faces three major risks. The first risk is AI dependency and erosion of negotiation. Without teacher guidance, some students may bypass group discussion and directly adopt AI suggestions, reducing cooperative learning to one-way AI-to-individual input and rendering democratic negotiation nominal. The countermeasure is to strengthen process assessment, requiring students to annotate which parts of their submitted writing adopted AI suggestions,

which came from group discussion, and which were original. The second risk is technological divide and digital inequality. Significant disparities exist in schools' IT infrastructure and students' digital literacy. Promoting this model in under-resourced environments may exacerbate rather than reduce educational inequality. A gradual approach is recommended – starting with one segment of one writing task and expanding as conditions permit. The third risk is abdication of professional teacher judgement. When AI can quickly generate writing analysis reports, teachers may unconsciously reduce their own close reading of student texts – a dangerous tendency. AI reports should serve as references for teacher judgement, not substitutes. Truly effective instructional intervention still depends on the teacher's sensitive grasp of each student's language development, which no technology can currently replace.

The basic conclusion of this study is that AI intervention in cooperative learning writing instruction should follow the principle of negotiable scaffolding, functioning in three areas – reducing cognitive load, accelerating feedback loops, and generating metacognitive activities – while strictly observing the three boundaries of non-replacement of independent thinking, non-disruption of democratic negotiation, and adherence to minimal intervention. The core value of this model lies not in the dazzle of technological application, but in its attempt to answer a deeper question: in an era when AI increasingly permeates education, how should human-human cooperative learning coexist with technology? The answer may lie neither in replacing cooperation with AI nor in excluding AI, but in having AI provide support at key points so that humans can focus more on those uniquely human activities – negotiation, judgement, and creation.

6. Conclusion

Starting from the democratic group system and the six-stage inquiry framework of cooperative learning, this study has analysed three structural dilemmas – lack of linguistic scaffolding, delayed feedback, and masking of individual differences – that cooperative learning encounters in junior high English writing instruction, and has argued for the necessity and possibility of AI as a negotiable scaffold. The pedagogical model proposed here structurally couples the six stages of cooperative learning with AI scaffolding functions, defines three boundaries and three mechanisms for AI intervention, and discusses the reconfiguration of the teacher's role and the practical risks of the model. The limitation of this study is that the theoretical construction and model design have not yet been systematically empirically tested. Future research could implement the model in authentic classrooms, using controlled experiments, classroom observations, and student interviews to examine its effectiveness and further optimise the timing and manner of AI intervention. In addition, different school levels and writing types may entail different demands for AI assistance, which is also a direction worthy of in-depth exploration. The organic integration of AI assistance and cooperative learning is not about replacing human interaction with technology, but about letting technology become a quiet force that supports deep learning.

References

- [1] Chen, X. D. (2024). Exploring deep learning strategies in human-machine collaborative English writing teaching. *English Square*, (5), 102–106. <https://doi.org/10.16723/j.cnki.yycg.2024.05.026>
- [2] Cheng, W. S. (2025). Application strategies of cooperative learning in junior high English writing instruction. *Campus English*, (32), 69–71.
- [3] Feng, Y. L. (2024). Constructing an AI-assisted integrative model for college English writing. *Journal of Jiaozuo Normal College*, 40(4), 58–60.
- [4] Flower, L., & Hayes, J. R. (1981). A cognitive process theory of writing. *College Composition and Communication*, 32(4), 365–387. <https://doi.org/10.2307/356600>
- [5] Han, S. (2026). Exploring the promotion of cooperative learning in classroom for junior high English writing ability. *Reading and Writing*, (8), 154–156.
- [6] Hou, J. D. (2024). Effects of automated writing evaluation systems on syntactic complexity in intermediate L2 English learners' writing. *Foreign Language and Culture*, 8(1), 133–143. <https://doi.org/10.19967/j.cnki.flc.2024.01.013>
- [7] Huang, Y., & Wang, D. (2025). Can ChatGPT serve as a writing collaborator? Insights from Chinese EFL learners. *System*, 133, Article 103775.
- [8] Johnson, D. W., & Johnson, R. T. (1999). *Learning together and alone: Cooperative, competitive, and individualistic learning* (5th ed.). Allyn & Bacon.
- [9] Mao, Y. S., Wang, Y. H., & Xing, Y. R. (2024). An empirical study of ChatGPT-assisted high school English writing feedback. *Educational Measurement and Evaluation*, (1), 3–13. <https://doi.org/10.16518/j.cnki.emae.2024.01.001>
- [10] Ren, W., Liu, Y. B., & Xie, Y. (2024). A comparative study of ChatGPT and teacher feedback in English writing instruction. *Foreign Language Teaching Theory and Practice*, (4), 30–38, 60.
- [11] Tang, Y. Q. (2026). Problems and strategies in junior high English writing instruction. *Reading and Writing*, (17), 157–159.
- [12] Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.
- [13] Wang, Y. M., & Wang, S. T. (2025). ChatGPT-empowered feedback in college English writing. *Forest Teaching*, (6), 86–90.
- [14] Wei, S., & Li, L. Y. (2023). AI-assisted L2 writing feedback: A case study of ChatGPT. *Chinese Foreign Languages*, 20(3), 33–40. <https://doi.org/10.13564/j.cnki.issn.1672-9382.2023.03.007>
- [15] Yan, D. (2024). Comparing individual vs. collaborative processing of ChatGPT-generated feedback: Effects on L2 writing task improvement and learning. *Language Learning & Technology*, 28(1), 1–19.
- [16] Yang, Z. X. (2026). Integration of generative AI and process writing approach: A new paradigm and future prospects for high school English writing teaching. *English Teachers*, 26(6), 5–10.
- [17] Zhang, H. Y. (2026). An applied study of cooperative learning in junior high English writing teaching. *Campus English*, (3), 94–96.
- [18] Zhou, Y. (2026). Mechanisms and pathways of generative AI empowering English writing instruction. *Foreign Language Teaching and Educational Technology*, (1), 25–31, 108. <https://doi.org/10.20139/j.issn.1001-5795.20260104>