

**DIGITAL PEER FEEDBACK IN ESL WRITING INSTRUCTION: EFFECTS ON
WRITING ACCURACY, LEARNER AUTONOMY, AND METACOGNITIVE
AWARENESS IN UZBEK SECONDARY SCHOOLS**

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Abstract: The pedagogical integration of digital tools into ESL writing instruction has increasingly foregrounded feedback as a central mechanism for learning. While automated and teacher-mediated feedback have been extensively examined, digitally mediated peer feedback remains underexplored, particularly in underrepresented educational contexts such as Uzbekistan. This study investigates the effects of digital peer feedback on writing accuracy, learner autonomy, and metacognitive awareness among ESL learners in Uzbek secondary schools. Grounded in sociocultural theory and process-oriented writing pedagogy, the study conceptualizes peer feedback as a form of mediated learning activity rather than a peripheral evaluative practice. Employing a mixed-methods design, the study analyzes pre- and post-writing performance, peer feedback interactions, and learner perceptions. The findings demonstrate statistically and pedagogically significant improvements in linguistic accuracy, increased learner autonomy in revision practices, and enhanced metacognitive awareness of writing processes. The study argues that digital peer feedback, when pedagogically scaffolded, constitutes a high-impact mechanism for aligning digital affordances with learner-centered writing development. Implications are drawn for the systematic integration of peer-mediated digital feedback in ESL classrooms within similar educational contexts.

Keywords: digital peer feedback, ESL writing, learner autonomy, metacognition.

The digital transformation of language education has reconfigured the epistemological and pedagogical foundations of ESL writing instruction. Writing, as a multidimensional construct involving linguistic accuracy, discourse competence, and metacognitive regulation, remains one of the most challenging skills for ESL learners to develop. Traditional instructional models in many educational systems, including Uzbekistan, have predominantly emphasized product-oriented outcomes and teacher-centered feedback practices. Such approaches often limit learners' engagement in recursive writing processes and constrain the development of independent revision strategies.

Recent advances in educational technology have introduced new possibilities for restructuring writing pedagogy toward more interactive and process-oriented models. Within

this paradigm shift, feedback is reconceptualized not merely as post hoc correction but as an integral component of learning, enabling learners to negotiate meaning, reflect on performance, and regulate their writing processes. While teacher and automated feedback have received considerable scholarly attention, the role of digital peer feedback as a mediational mechanism in ESL writing development remains insufficiently theorized and empirically examined.

This gap is particularly evident in secondary education contexts and in regions such as Uzbekistan, where the integration of digital tools into language instruction is ongoing and pedagogical practices remain in transition. Although national educational reforms advocate the use of technology to enhance communicative competence, there is limited empirical evidence regarding how specific digitally mediated practices contribute to writing development.

This study addresses this gap by investigating the pedagogical effects of digital peer feedback on ESL learners' writing accuracy, learner autonomy, and metacognitive awareness in Uzbek secondary schools. Positioned within a broader research agenda on the role of digital tools in developing ESL writing skills, the study seeks to move beyond descriptive accounts of technology use toward an analysis of the underlying mechanisms through which digital environments facilitate learning. The study is guided by the following research questions: To what extent does digital peer feedback influence ESL learners' writing accuracy?; How does engagement in digital peer feedback affect learner autonomy in the writing process?; In what ways does digital peer feedback contribute to learners' metacognitive awareness?

The study adopts a mixed-methods research design to capture both the measurable outcomes of writing development and the qualitative dimensions of learner experience. This design enables the triangulation of quantitative performance data with qualitative insights into cognitive and pedagogical processes.

Participants were secondary school ESL learners in Uzbekistan with intermediate proficiency in English. The instructional context was characterized by limited prior exposure to peer feedback and a predominance of teacher-led correction practices. The intervention introduced structured digital peer feedback activities into regular writing instruction.

Digital peer feedback was implemented through collaborative writing platforms that allowed learners to exchange written comments, suggestions, and revisions asynchronously. The intervention was pedagogically scaffolded through explicit training in feedback strategies, the use of analytic writing criteria, and guided peer-review tasks. This scaffolding was designed to ensure that feedback moved beyond surface-level correction toward meaningful engagement with content, organization, and language use.

Data were collected through multiple instruments: Pre- and post-writing tasks to assess changes in linguistic accuracy; Digital feedback logs documenting peer interactions; Structured questionnaires measuring learner autonomy and metacognitive awareness; Semi-structured interviews exploring learners' perceptions of the feedback process.

Quantitative data were analyzed using descriptive and inferential statistical techniques

to identify changes in writing accuracy. Qualitative data from feedback logs and interviews were analyzed thematically to identify patterns related to autonomy and metacognitive development. The integration of these data sources allowed for a comprehensive interpretation of the pedagogical effects of digital peer feedback.

The results indicate that participation in digital peer feedback led to measurable improvements in writing accuracy. Learners demonstrated increased control over grammatical structures and more precise lexical choices in post-intervention writing tasks. These improvements were particularly evident in areas that had been explicitly addressed during peer feedback interactions.

In terms of learner autonomy, questionnaire responses and interview data revealed a shift in learners' roles from passive recipients of teacher correction to active agents in the revision process. Participants reported greater confidence in evaluating their own writing and a willingness to engage in independent revision without relying exclusively on teacher input. The analysis of feedback logs and qualitative data further indicates that digital peer feedback contributed to the development of metacognitive awareness. Learners became more conscious of writing criteria, error patterns, and revision strategies. The act of providing feedback required learners to articulate evaluative judgments, which in turn facilitated reflection on their own writing practices.

The findings of this study provide empirical support for the conceptualization of digital peer feedback as a mediational mechanism within sociocultural frameworks of learning. Rather than functioning solely as an alternative source of correction, digital peer feedback operates as an interactive process through which learners co-construct knowledge, negotiate meaning, and internalize evaluative criteria. The observed improvements in writing accuracy can be attributed to the increased frequency and diversity of feedback, as well as the opportunity for learners to engage with language forms in meaningful contexts. Importantly, the asynchronous nature of digital platforms appears to reduce time pressure and allow for more deliberate and reflective engagement with feedback. The development of learner autonomy aligns with theoretical perspectives that emphasize the role of self-regulation in language learning. By participating in peer review, learners assume responsibility for both giving and receiving feedback, thereby developing skills that extend beyond individual writing tasks. This shift is particularly significant in educational contexts where teacher-centered practices have traditionally dominated. From a metacognitive perspective, the findings underscore the importance of feedback as a tool for fostering awareness of cognitive processes. The requirement to evaluate peer texts and justify feedback decisions encourages learners to engage in higher-order thinking, which supports long-term writing development. At a broader level, the study contributes to the understanding of how digital tools can be pedagogically leveraged to support ESL writing development. It moves beyond a focus on technological affordances to highlight the importance of instructional design and scaffolding in realizing the potential of digital environments.

This study demonstrates that digital peer feedback, when systematically implemented

and pedagogically supported, has significant positive effects on ESL learners' writing accuracy, learner autonomy, and metacognitive awareness in Uzbek secondary schools. By positioning feedback as a central mechanism of learning within digitally mediated environments, the study provides a nuanced understanding of how digital tools contribute to writing development. The findings have important implications for both research and practice. For researchers, the study highlights the need for further investigation into the cognitive and pedagogical processes underlying digital learning environments. For practitioners, it underscores the value of integrating structured peer feedback into ESL writing instruction as a means of promoting learner-centered and process-oriented pedagogy. In the context of ongoing educational reforms in Uzbekistan, digital peer feedback represents a viable and scalable approach to enhancing the quality of ESL writing instruction. As such, it constitutes a key component of broader efforts to align language education with contemporary pedagogical and technological standards.

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