



Castledown

 OPEN ACCESS

Technology in Language Teaching & Learning

ISSN 2652-1687

<https://www.castledown.com/journals/tltl/>

Technology in Language Teaching & Learning, 8, 104746 (2026)

<https://doi.org/10.29140/tltl.2026.104746>

From Assistance toward Appropriation: An Activity-theoretical Perspective on ChatGPT-mediated Academic Writing among University Students



ISMAIL XODABANDE^{a,b} 

ABDULXAY QOSIMOV^b

KHURSHIDA UMAROVA^b

^a*Kharazmi University, Tehran,
Islamic Republic of Iran*
ismail.kh.tefl@gmail.com

^b*Fergana State University,
Fergana region, Uzbekistan*
a.qosimov@pf.fdu.uz
x.z.umarova@pf.fdu.uz

Abstract

Generative artificial intelligence has created new possibilities for supporting second language academic writing, but less is known about how learners take up such support within ordinary writing instruction. Drawing on Activity Theory, this qualitative classroom-based case study examined how ChatGPT was used in an Uzbek university academic writing course and what tensions shaped students' movement from AI assistance toward appropriation. The participants were 10 first-year EFL students majoring in English literature and English language teaching at Fergana State University. Across a ten-week course, data were collected through a background questionnaire, baseline writing task, six AI-mediated writing tasks, ChatGPT interaction logs, draft-revision pairs, reflective writing logs, semi-structured interviews, stimulated recall interviews, and teacher field notes. Thematic analysis identified three themes. First, students initially used ChatGPT as a substitute for difficult writing work, especially for paragraph generation, correction, and rewriting, but gradually developed more task-specific uses. Second, ChatGPT created a tension between convenience and learning responsibility, as it helped students produce more fluent paragraphs while sometimes weakening control over

Copyright: © 2026 Ismail Xodabande, Abdulxay Qosimov & Khurshida Umarova. This is an open access article distributed under the terms of the Creative Commons Attribution Non-Commercial 4.0 International License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

meaning, authorship, and revision decisions. Third, teacher mediation, including AI-use rules, prompt modeling, feedback, reflection, and classroom dialogue, helped regulate AI use. The findings suggest that ChatGPT-mediated writing development depends not only on tool access but also on pedagogical mediation that helps learners evaluate, regulate, and explain AI-supported writing decisions.

Keywords: ChatGPT-mediated writing, academic writing, AI-use literacy, generative artificial intelligence, EFL writing instruction, Activity Theory

Introduction

Academic writing has remained a demanding area of second language development because it requires learners to coordinate linguistic accuracy, lexical range, rhetorical organization, coherence, cohesion, audience awareness, genre expectations, and revision decisions within a cognitively intensive composing process (Ferris, 2014; Flower & Hayes, 1981; Hyland, 2019; Manchón, 2011; Silva, 1993). For learners who write in English in foreign language contexts, these demands are often intensified by limited exposure to academic English beyond the classroom, insufficient access to individualized feedback, restricted opportunities for guided revision, and the need to manage both language form and academic meaning while producing written texts (Ferris, 2014; Hyland, 2019; Manchón, 2011). Academic writing instruction therefore involves more than helping students correct errors or produce acceptable final drafts. It also requires sustained support for planning, idea development, organization, feedback interpretation, revision, and gradual control over the textual and rhetorical practices through which academic meanings are constructed (Hyland, 2019; Manchón, 2011; Russell, 1997).

Within this pedagogical context, generative artificial intelligence has introduced new possibilities for supporting second language writing. Tools such as ChatGPT can assist learners with brainstorming, outlining, grammar correction, sentence reformulation, vocabulary selection, feedback interpretation, revision, and model text generation, and recent studies have shown that learners and teachers increasingly perceive these tools as useful additions to writing instruction (Barrett & Pack, 2023; Mahapatra, 2024; Meniado et al., 2024; Song & Song, 2023; Teng, 2024; Yan, 2023). Recent work on AI-mediated writing has also shown that generative AI can support grammar development, academic writing, collaborative revision, and feedback uptake when its use is embedded in structured writing tasks rather than treated as unrestricted text generation (Al-Sofi, 2026; Emerson et al., 2026; Fadilah, 2026; Phuong Linh et al., 2026; Tran, 2026). However, the emergence of AI-mediated writing support also changes the pedagogical conditions under which academic writing is learned. Because generative AI can provide fluent text, immediate feedback, and apparently authoritative suggestions, it can support learning while also raising questions about dependence, authorship, academic integrity, learner agency, feedback reliability, and the extent to which students remain responsible for the intellectual and linguistic work of writing (Guo & Wang, 2024; Koltovskaia et al., 2024; Lin & Crosthwaite, 2024; Marzuki et al., 2023; Steiss et al., 2024).

Research on ChatGPT and second language writing has expanded rapidly and has already provided useful evidence on its pedagogical potential. Existing studies have examined the effects of ChatGPT-supported instruction on writing performance, motivation, engagement, writing self-efficacy, and writing skill development, with many findings suggesting that AI-supported instruction can improve aspects of writing when it is embedded in pedagogically structured activities (Asadi et al., 2025; Boudouaia et al., 2024; Ghafouri et al., 2024; Jmaiel et al., 2025; Mahapatra, 2024; Song & Song, 2023; Teng & Huang, 2025; Zare et al., 2025). Other studies have focused on AI-generated feedback and have

compared ChatGPT feedback with teacher, peer, or human evaluator feedback, showing that ChatGPT can provide rapid and extensive comments but may also produce feedback that is generic, excessive, inaccurate, weakly contextualized, or insufficiently aligned with task demands and learner needs (Banihashem et al., 2024; Guo & Wang, 2024; Lin & Crosthwaite, 2024; Solovey, 2024; Steiss et al., 2024; Wang et al., 2024). A further body of work has examined learner perceptions and experiences, showing that students often value ChatGPT as a writing assistant, editor, proofreader, companion, or mentor, while also expressing concerns about accuracy, overreliance, originality, and the weakening of independent writing effort (Allen & Mizumoto, 2024; Barrett & Pack, 2023; Meniado et al., 2024; Punar Özçelik & Yangın Ekşi, 2024; Strobl et al., 2024; Teng, 2024; Yan, 2023). In EFL academic writing contexts, AI use has also been linked to informal learning opportunities, academic writing performance, and students' motivational engagement with writing tasks, although these studies also point to the need for closer attention to how learners regulate AI support during actual composing and revision (Kosimov & Murotova, 2025; Tran, 2026; Valizadeh et al., 2026).

Taken together, these studies show that the field has moved beyond the simple question of whether ChatGPT can generate useful text. The more pressing issue now concerns how learners take up AI support inside writing instruction, how they negotiate AI suggestions in relation to teacher guidance and course expectations, and what tensions emerge when assistance, learning, authorship, and assessment become intertwined in AI-mediated academic writing practice. This issue is especially important in EFL contexts where students may have access to powerful AI tools but limited prior experience with academic writing, process-based revision, and explicit AI-use rules. The present study is located in this research space and examines ChatGPT-mediated academic writing as a situated pedagogical activity in which AI support is not only received but also interpreted, modified, resisted, or appropriated by learners. The study contributes to research on AI-mediated L2 writing by showing how students' movement toward appropriation was visible in three related shifts, early broad prompts for paragraph generation and correction gradually gave way to more task-specific diagnostic prompts; the division of labor shifted from AI-led rewriting toward student-controlled revision; and teacher-imposed rules, prompt modeling, reflective logs, and feedback made AI-supported writing decisions more visible, accountable, and pedagogically discussable in the classroom activity system.

Literature Review

Theoretical Perspective

This study is informed by cultural-historical Activity Theory, which views human action and learning as mediated, object-oriented, socially organized, and historically situated (Engeström, 1987, 2001; Leont'ev, 1978; Vygotsky, 1978). From this perspective, learning is not reducible to individual cognition or isolated skill acquisition. It emerges through relations among subjects, mediational tools, rules, communities, divisions of labor, and objects of activity (Engeström, 1987, 2001). Early formulations of Activity Theory emphasized mediated action between subject, object, and tool, while later formulations expanded the unit of analysis to collective activity systems involving rules, community, and division of labor (Engeström, 1987, 2001; Vygotsky, 1978). This expanded view is especially relevant to academic writing because writing is not only a linguistic act. It is shaped by institutional expectations, genre conventions, teacher feedback, peer interaction, assessment criteria, model texts, digital resources, and the purposes for which writing is produced (Hyland, 2019; Russell, 1997). In an academic writing course, therefore, students do not simply use language to complete assignments; they participate in a structured activity system in which writing tasks, feedback practices, classroom rules, and available tools shape what counts as successful writing and how learners understand their role as writers.

Within such an activity system, ChatGPT can be understood as a mediational artefact that may reorganize the conditions of writing practice. It can provide access to language resources, alternative formulations, feedback, explanations, and revision possibilities, but it can also redistribute parts of the writing work between learner, teacher, peer, and machine (Jacob et al., 2024; Koltovskaia et al., 2024; Yan, 2023; Zou et al., 2025). This redistribution is pedagogically significant because students may use ChatGPT for different purposes across the writing process. Some may use it to generate ideas, clarify structure, improve grammar, revise style, check coherence, or understand feedback. Others may use it to produce whole sections of text, avoid difficult composing decisions, or replace rather than support their own writing effort (Barrett & Pack, 2023; Marzuki et al., 2023; Teng, 2024). Activity Theory provides a useful way to examine these differences because it directs attention to how tool use is shaped by the object of activity, available rules, community expectations, and the division of labor within the course. In this sense, ChatGPT is not treated only as an external writing aid but as a tool that may alter who does particular parts of the writing work, how responsibility is assigned, and how students understand the object of academic writing. Related activity-theoretical work in applied linguistics has similarly shown that mediated action becomes meaningful through the social and institutional organization of activity, rather than through tool access alone (Valizadeh, 2026; Zou et al., 2025).

A central concept in this study is tension, understood in relation to contradictions within activity systems. Contradictions are not merely individual problems or negative attitudes; they are structural tensions that reveal how an activity is being reorganized (Engeström, 1987, 2001). In ChatGPT-mediated academic writing, such tensions may emerge between learning and outsourcing, assistance and dependence, accuracy and authorship, teacher expectations and AI-generated suggestions, or institutional rules and learner practices. Recent studies have already shown that ChatGPT can support writing through feedback, revision, and language improvement, but they also show concerns about inaccurate feedback, generic output, overreliance, plagiarism, and reduced critical engagement (Guo & Wang, 2024; Lin & Crosthwaite, 2024; Marzuki et al., 2023; Steiss et al., 2024; Teng, 2024). These concerns are not only limitations of a tool; they are signs of changing relations within the writing activity system. Of interest here is the contradiction between two objects that may coexist within the same writing course, including producing a polished paragraph and developing learner control over academic writing decisions. ChatGPT can support the first object quickly, but it supports the second only when learners remain involved in evaluating, modifying, and explaining AI-mediated revisions.

The notion of appropriation is therefore important for this study. Learners may not simply adopt AI support as given. They may adapt prompts, compare AI suggestions with teacher feedback, selectively accept or reject recommendations, revise generated text, or gradually develop more regulated forms of tool use. Appropriation, in this sense, refers to the process through which learners bring a mediational tool into their own writing activity in ways that remain connected to task purpose, intended meaning, and learning responsibility. It is visible not only in whether students use ChatGPT, but in how they formulate prompts, evaluate output, preserve or alter meaning, justify revisions, and decide which parts of the writing work should remain under their own control. The movement from assistance to appropriation therefore provides a way to examine how students position ChatGPT within their academic writing activity. Closely related to this process is AI-use literacy, understood here as the ability to use generative AI in writing through task-specific prompting, critical evaluation of output, responsible revision, and explanation of AI-supported writing decisions. This view connects AI-use literacy to academic writing pedagogy rather than treating it as a purely technical skill.

Previous Studies

Empirical research on ChatGPT and second language writing has developed along several overlapping lines. One major line has examined the effects of ChatGPT-supported instruction on writing performance

and learner engagement. Several intervention and mixed-methods studies have reported that ChatGPT can support academic writing development by helping learners generate ideas, organize content, revise drafts, and improve language accuracy (Boudouaia et al., 2024; Mahapatra, 2024; Song & Song, 2023; Teng & Huang, 2025). Similar findings have been reported in studies that integrated ChatGPT with teacher feedback or writing instruction, where students showed gains in writing performance, motivation, or engagement when AI support was used as part of a structured pedagogical sequence (Asadi et al., 2025; Ghafouri et al., 2024; Jmaiel et al., 2025; Zare et al., 2025). Recent studies further show that AI-mediated writing support can be integrated into grammar feedback, collaborative L2 writing, argumentative writing, essay writing instruction, and academic writing motivation, although the value of this support depends on how AI use is pedagogically framed and regulated (Al-Sofi, 2026; Emerson et al., 2026; Fadilah, 2026; Phuong Linh et al., 2026; Tran, 2026). For example, Emerson et al. (2026) examined constrained, learner-initiated GenAI feedback in collaborative L2 writing, while Fadilah (2026) focused on AI-mediated peer collaboration in EFL argumentative writing. These studies are relevant to the present study because they shift attention from AI output alone toward the instructional structures that regulate learner engagement with AI-supported writing. These studies demonstrate the potential of generative AI to address long-standing constraints in writing instruction, particularly limited access to immediate feedback, individualized language support, and repeated opportunities for revision (Ferris, 2014; Hyland, 2019). However, they also suggest that the benefit of ChatGPT depends on how the tool is integrated into teaching, how students are guided to use it, and whether AI support strengthens or weakens learners' own engagement with writing tasks (Asadi et al., 2025; Ghafouri et al., 2024; Mahapatra, 2024; Song & Song, 2023).

A second group of studies has examined ChatGPT as a source of written feedback. This line of research has compared AI-generated feedback with teacher feedback, peer feedback, and human evaluator feedback, producing a more cautious picture of AI support. Studies have shown that ChatGPT can generate large amounts of feedback quickly, address language and organization problems, and provide revision-oriented comments that students may find useful (Banihashem et al., 2024; Guo & Wang, 2024; Solovey, 2024; Wang et al., 2024). At the same time, the feedback literature shows that ChatGPT cannot be treated as equivalent to teacher feedback. Human feedback has been found to be stronger in clarity, accuracy, prioritization, contextual sensitivity, and alignment with pedagogical goals (Guo & Wang, 2024; Lin & Crosthwaite, 2024; Steiss et al., 2024). Research on undergraduate argumentation also suggests that ChatGPT can identify some argumentative elements but may produce lengthy, incorrect, or insufficiently affective feedback (Wang et al., 2024). Studies of written corrective feedback have similarly shown that GPT-assisted feedback may vary across identical prompts, overcorrect learner texts, or provide responses that are not well calibrated to learner needs (Lin & Crosthwaite, 2024). This evidence is important for the present study because it shows that AI feedback requires interpretation. The pedagogical issue is not only whether feedback is available but whether learners know how to evaluate, filter, modify, and apply it within a writing course.

A third line of research has focused on learner perceptions, preferences, and experiences. Students often report that ChatGPT is useful because it is accessible, fast, non-judgmental, and capable of providing language support at different stages of writing (Allen & Mizumoto, 2024; Meniado et al., 2024; Punar Özçelik & Yangın Ekşi, 2024; Teng, 2024; Yan, 2023). Some studies describe ChatGPT as a companion, writing buddy, learning assistant, or mentor, indicating that learners may experience the tool as a dialogic support rather than merely a correction device (Ghafouri et al., 2024; Punar Özçelik & Yangın Ekşi, 2024; Strobl et al., 2024; Teng, 2024). Learners have valued AI assistance for grammar correction, editing, proofreading, vocabulary development, organization, and confidence building, and some have preferred ChatGPT over peer support for editing because it is perceived as more convenient and less face-threatening (Allen & Mizumoto, 2024; Solovey, 2024). Research on EFL students' academic uses of AI also suggests that AI adoption is shaped by perceived usefulness, motivation, task

demands, and the wider learning environment, not only by access to the technology itself (Tran, 2026; Valizadeh et al., 2026). However, this same literature also indicates that positive perception does not resolve deeper pedagogical questions. Students may value ChatGPT while still depending on it excessively, accepting inaccurate suggestions, failing to evaluate generated feedback critically, or using it in ways that conflict with course expectations and academic integrity principles (Barrett & Pack, 2023; Meniado et al., 2024; Teng, 2024; Yan, 2023).

More process-oriented studies have begun to examine how learners actually work with ChatGPT during writing and revision. Research on graduate students' use of ChatGPT for academic text revision has shown that engagement with AI feedback includes behavioral, cognitive, and affective dimensions, such as prompt formulation, selective uptake, confidence, frustration, and uncertainty (Koltovskaia et al., 2024). Case-based research on AI-assisted discourse has shown that a second language writer may use ChatGPT across brainstorming, research, drafting, and revision while still needing to manage generic ideas, fabricated sources, unreliable suggestions, and risks to authorial control (Jacob et al., 2024). Work on real-time generative AI use has further shifted attention toward when, why, and for how long learners use AI during writing, which is important because AI support may vary across writing stages and task demands (Hwang et al., 2025). Activity-theoretical research on doctoral writing has also shown that generative AI-assisted L2 writing involves complex relations among writer goals, tool affordances, institutional expectations, ethical concerns, and strategy regulation (Zou et al., 2025). In the regional EFL literature, AI-mediated informal language learning has also been linked to academic writing performance, but further classroom-based evidence is still needed to show how students actually distribute writing responsibility between themselves and AI during drafting and revision (Kosimov & Murotova, 2025). These studies represent an important movement in the literature because they move beyond simple outcome or attitude questions and begin to examine AI-mediated writing as a process of negotiation, regulation, and decision-making.

Across these lines of inquiry, several major patterns can be identified. First, ChatGPT appears to be useful for expanding access to immediate writing support, especially in relation to brainstorming, language correction, revision, and feedback (Mahapatra, 2024; Meniado et al., 2024; Song & Song, 2023; Teng, 2024; Yan, 2023). Second, its pedagogical value depends strongly on task design, teacher guidance, learner proficiency, prompt quality, and the extent to which students critically evaluate AI-generated responses (Asadi et al., 2025; Fan et al., 2024; Guo & Wang, 2024; Koltovskaia et al., 2024). Third, AI support creates recurrent concerns around overreliance, generic language, inaccurate or excessive feedback, fabricated information, authorship, and the weakening of independent writing effort (Barrett & Pack, 2023; Jacob et al., 2024; Marzuki et al., 2023; Steiss et al., 2024). Fourth, much of the literature still approaches ChatGPT through outcomes, perceptions, feedback comparison, or tool evaluation, while fewer studies examine how students take up AI support as part of the ordinary ecology of writing instruction, where teacher expectations, course rules, peer norms, task requirements, and learner goals interact. The need for such work is not based on the absence of previous research, but on the complexity that previous research has revealed. As generative AI becomes part of writing classrooms, the field needs more situated accounts of how learners use it, what problems arise in practice, and how assistance may or may not become appropriation.

Current Study

The present study builds on this literature by examining ChatGPT-mediated academic writing in the context of an Uzbek university academic writing course. Previous research has shown that ChatGPT can support L2 writing through feedback, revision, language improvement, idea generation, and motivation, but it has also shown that AI support can create problems of dependence, accuracy, authorship, and uneven learner control (Barrett & Pack, 2023; Guo & Wang, 2024; Koltovskaia et al., 2024; Lin &

Crosthwaite, 2024; Mahapatra, 2024; Teng, 2024). The present study takes these findings as a starting point and focuses more closely on how AI support is taken up within academic writing activity. This focus is important because the value of ChatGPT in writing instruction depends not only on the quality of its output but also on how learners understand, evaluate, adapt, and regulate that output in relation to course expectations and the object of learning to write academically. Rather than treating ChatGPT as a simple intervention, feedback provider, or perception object, the study examines the tool as part of a wider writing activity in which learners, tasks, teacher mediation, classroom rules, peer relations, and academic writing expectations intersect. This orientation allows attention to be directed toward the practical and pedagogical conditions under which AI support becomes helpful, problematic, negotiated, or contested. The study therefore focuses on how ChatGPT entered the division of labor in an academic writing course, how students negotiated responsibility for drafting and revision, and how classroom rules and teacher mediation shaped their movement from broad AI assistance toward more selective forms of appropriation. The study is guided by the following research questions:

1. How is ChatGPT taken up as writing support within an Uzbek university academic writing course?
2. What tensions shape students' movement from AI assistance toward appropriation in ChatGPT-mediated academic writing?

Method

Research Design and Participants

The study adopted a qualitative classroom-based case study design to examine how ChatGPT was taken up as writing support within an academic writing course. A case study design was appropriate because the study focused on a bounded instructional setting in which students, writing tasks, teacher guidance, course rules, peer interaction, and AI-mediated writing practices developed over time (Merriam & Tisdell, 2016; Yin, 2018). The purpose was not to measure the effect of ChatGPT on writing achievement or to compare AI-supported writing with a control group. Rather, the study aimed to understand how students used ChatGPT during academic writing tasks, how their use of the tool changed across the course, and what tensions emerged as AI assistance became part of their writing activity. The study was informed by Activity Theory, which guided the interpretation of ChatGPT-mediated writing as a socially situated and tool-mediated activity.

The study was conducted at Fergana State University in Uzbekistan in a first-year undergraduate academic writing course. The course was offered to students majoring in language-related fields, particularly English literature and English language teaching. The course met for two hours per week over ten weeks and focused on the development of academic writing through paragraph-based writing tasks, guided revision, teacher feedback, and classroom discussion of academic writing conventions. The main instructional areas included topic sentence development, paragraph unity, supporting details, coherence, cohesion, sentence clarity, vocabulary choice, academic style, and revision.

The participants were 10 first-year EFL university students enrolled in the course. They were selected through convenience sampling because they were accessible to the researcher and were taking the same academic writing course during the period of data collection. The students were between 18 and 20 years old. Their English proficiency was approximately intermediate level, based on teacher assessment, classroom writing performance, and self-reported proficiency. All participants had access to ChatGPT through their own digital devices, either smartphones or laptops. The freely accessible version of ChatGPT available to students at the time of data collection was used throughout the study because it represented the form of AI access realistically available in the instructional context. The study did not compare different model versions or subscription levels; therefore, ChatGPT was

treated as a classroom-accessible generative AI writing support tool rather than as a technically fixed experimental treatment. Participation in the study was voluntary. Students were informed that the research focused on their experiences of using ChatGPT during writing tasks and that their decision to participate would not affect their course grades. Pseudonyms were assigned to all participants, and identifying information was removed from interview transcripts, reflective logs, writing samples, and ChatGPT interaction records.

Course Procedures and ChatGPT Use

The study was embedded in the regular academic writing course rather than conducted as a separate intervention. During the ten-week course, students completed six academic writing topics. This number was selected because it allowed repeated observation of students' AI-mediated writing practices while remaining realistic for a two-hour-per-week course. The topics were sequenced from basic paragraph control to more developed academic revision. Each topic required students to produce an academic paragraph of approximately 180–220 words. In-class drafting activities were usually completed within 30–40 minutes, while revision and ChatGPT-supported work were completed either during class or as guided homework.

At the beginning of the course, students received an orientation on responsible ChatGPT use. The teacher explained that ChatGPT could be used as a writing support tool, but not as a substitute writer. Students were allowed to use ChatGPT for brainstorming, outlining, improving topic sentences, checking grammar, revising vocabulary, improving coherence and cohesion, comparing alternative sentence versions, and asking for explanations of writing problems. They were not allowed to submit a fully AI-generated paragraph as their own work, delete AI interaction records required for the study, or use ChatGPT in ways that prevented them from explaining their own writing decisions. These guidelines were revisited during the course when students had questions about acceptable and unacceptable AI use.

The teacher acted as the writing instructor and as the mediator of responsible AI use. In the instructional role, the teacher explained academic writing conventions, introduced paragraph models, guided students through drafting and revision, and provided feedback on student writing. In the AI-mediation role, the teacher demonstrated examples of useful and weak prompts, discussed the need to evaluate AI-generated suggestions, and encouraged students to compare ChatGPT feedback with task requirements and teacher comments. ChatGPT was therefore positioned as one resource within the writing course, alongside teacher feedback, peer discussion, model paragraphs, rubrics, and students' own revision decisions. Table 1 summarizes the course procedure.

Table 1. *Overview of the Course Procedure*

Week	Course focus and writing activity	Main instructional/research procedure
1	Orientation to academic writing expectations, responsible ChatGPT use, and baseline writing without ChatGPT. Baseline topic: One challenge faced by first-year university students.	Background questionnaire, baseline paragraph written in 35 minutes, initial interview
2	Topic 1: Paragraph unity and topic sentence development. Sample topic: The role of technology in language learning.	Drafting, ChatGPT-supported revision, reflective log
3	Topic 2: Supporting details and idea development. Sample topic: Effective ways to improve English writing.	Drafting, ChatGPT-supported revision, reflective log, teacher notes

(Continued)

Week	Course focus and writing activity	Main instructional/research procedure
4	Topic 3: Coherence and cohesion. Sample topic: Advantages and disadvantages of online education.	Drafting, ChatGPT-supported revision, reflective log
5	Mid-course Consolidation and reflection on ChatGPT use.	Mid-course interview and stimulated recall using selected logs and drafts
6	Topic 4: Academic vocabulary and sentence clarity. Sample topic: The importance of reading for academic success.	Drafting, ChatGPT-supported revision, reflective log, teacher notes
7	Topic 5: Academic style and revision. Sample topic: The influence of artificial intelligence on student learning.	Drafting, ChatGPT-supported revision, reflective log
8	Topic 6: Integrated academic paragraph writing. Sample topic: How university students can become more independent learners.	Drafting, ChatGPT-supported revision, reflective log
9	Final revision workshop and review of selected writing samples.	Final revised writing samples, selected ChatGPT records, teacher notes
10	Final reflection on AI-mediated academic writing.	Final interview, final stimulated recall, complete artifact collection

Data Collection Procedures

Multiple qualitative data sources were collected to provide a detailed account of students' ChatGPT-mediated writing practices. These included a background questionnaire, a baseline writing task, six AI-mediated writing tasks, ChatGPT interaction logs, draft-revision pairs, short reflective writing logs, semi-structured interviews, stimulated recall interviews, and teacher field notes. The background questionnaire collected descriptive information about age, major, years of English study, self-rated English proficiency, self-rated writing ability, previous academic writing experience, prior use of ChatGPT or similar AI tools, and access to digital devices. The baseline writing task was completed in the first week without ChatGPT and was used to contextualize students' initial writing practices rather than to generate a quantitative pretest score.

For the six AI-mediated writing tasks, students followed the same general cycle. They first planned or drafted their paragraph, then used ChatGPT for support, revised the text, and submitted the draft, ChatGPT record, revised paragraph, and reflective log. ChatGPT interaction logs were a central data source. For each task, students recorded their prompts, ChatGPT responses, the parts of the response they used, the changes they made, and the reasons for accepting, modifying, or rejecting suggestions. Because students used ChatGPT on smartphones and laptops, they were allowed to submit the logs as copied text, screenshots, or exported conversation records. A structured log template was used to make the records comparable across students and tasks. Draft-revision pairs were collected for each AI-mediated task and included the initial draft, the ChatGPT-supported revision, and the final submitted paragraph. These texts helped identify how AI support entered the writing process, including changes in topic sentences, supporting details, organization, transitions, vocabulary, grammar, and academic tone. After each AI-mediated task, students also completed a short reflective writing log of approximately 150–200 words, explaining what they asked ChatGPT to help with, which suggestions they found useful or unhelpful, what they changed, and whether they felt that the final version still represented their own writing.

Semi-structured interviews were conducted at three points: before the AI-mediated writing cycles began, around the midpoint of the course, and at the end of the course. The initial interviews explored prior experiences with academic writing, perceived writing difficulties, previous AI use, expectations about ChatGPT, and concerns about using AI for writing. The mid-course interviews focused on actual use of ChatGPT, emerging difficulties, perceived benefits, and changes in the writing process. The final interviews examined overall experiences, perceived learning, dependence or independence, authorship concerns, and future views on AI use in academic writing. Interviews lasted approximately 20–30 minutes and were audio-recorded with participant permission. The interviews were conducted in Uzbek, which allowed participants to explain their experiences in the language most comfortable to them. The teacher-researcher conducted the interviews and produced the initial English translations of the excerpts used in the manuscript. To support translation accuracy, the translated excerpts were checked against the original recordings, with priority given to preserving the semantic content of participants' accounts rather than producing overly polished English versions.

Stimulated recall interviews were conducted around the midpoint and at the end of the course. In these sessions, students were shown selected excerpts from their ChatGPT logs, drafts, and revised paragraphs and were asked to explain why they wrote specific prompts, why they accepted or rejected particular AI suggestions, how they changed AI-generated text, and how they judged whether a revised paragraph still represented their own writing. The recall prompts focused on concrete writing-process evidence rather than general attitudes. Students were asked what writing problem they were trying to solve through a prompt, which part of a ChatGPT response they used or ignored, whether they understood an AI-revised sentence, what changed between the initial and final draft, and whether the final version still felt like their own writing. This procedure helped connect student accounts with actual prompts, draft-revision pairs, and revision decisions. Teacher field notes were also kept throughout the course to document classroom events, student questions, teacher explanations of AI-use rules, observed difficulties, peer discussions, and recurring issues related to ChatGPT use. These notes were used

Table 2. *Data Sources and Analytic Purpose*

Data source	Timing/frequency	Main analytic purpose
Background questionnaire	Week 1	To document students' writing background, prior AI use, self-rated proficiency, and access to digital devices
Baseline writing task	Week 1	To contextualize students' initial paragraph writing practices before ChatGPT-mediated tasks
AI-mediated writing tasks	Six tasks across Weeks 2–8	To observe repeated use of ChatGPT during planning, drafting, revision, and reflection
ChatGPT interaction logs	After each AI-mediated task	To examine prompts, AI responses, student uptake, modification, rejection, and stated revision reasons
Draft-revision pairs	After each AI-mediated task	To trace textual changes between initial drafts, AI-supported revisions, and final submitted paragraphs
Reflective writing logs	After each AI-mediated task	To capture students' explanations of AI use, perceived usefulness, difficulty, and authorship awareness
Semi-structured interviews	Initial, mid-course, and final stages	To examine prior writing experiences, changing AI-use patterns, dependence, authorship, and perceived learning
Stimulated recall interviews	Mid-course and final stages	To connect students' explanations with concrete prompts, ChatGPT responses, and draft-revision evidence
Teacher field notes	Throughout the course	To document classroom events, teacher mediation, student questions, prompt modeling, and observed tensions

mainly to contextualize patterns found in logs, drafts, reflections, and interviews, especially moments where teacher rules, prompt modeling, or classroom discussion appeared to influence later student use of ChatGPT. Table 2 summarizes the main data sources and their analytic purpose.

Teacher-researcher Positionality and Ethical Procedures

The classroom instructor also participated in the research process. This dual role was methodologically relevant because teacher mediation formed part of the activity system under investigation. The study followed ethical procedures for research involving human participants. All procedures performed in this study involving human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. The study was approved by the ethics committee of Fergana State University (REC-FSU-20/2025). Students were informed about the purpose of the study, the types of data collected, voluntary participation, confidentiality, and the right to withdraw. Because the study involved ChatGPT interaction records, students were advised not to enter personal, sensitive, or identifying information into ChatGPT. ChatGPT logs, screenshots, exported conversations, writing samples, reflective logs, and interview transcripts were anonymized before analysis.

Data Analysis

Data analysis followed a thematic approach informed by Activity Theory (Braun & Clarke, 2006, 2021; Engeström, 1987, 2001). The analysis began with organizing all data by participant and writing task. Each participant file included the background questionnaire, baseline paragraph, ChatGPT logs, draft-revision pairs, reflective writing logs, interview transcripts, stimulated recall data, and relevant teacher field notes. The researcher then read the complete dataset several times to become familiar with students' writing practices, AI interactions, and reflections. The analysis involved two connected layers. The first layer was thematic and focused on identifying recurring patterns in how students used ChatGPT during planning, drafting, revision, and reflection. Initial codes included broad prompting, paragraph generation, grammar correction, vocabulary replacement, idea expansion, accepting AI wording, modifying AI output, rejecting unsuitable suggestions, asking for explanation, comparing AI feedback with teacher feedback, and maintaining or losing control over meaning. These codes were then grouped into focused categories such as product-oriented prompting, selective uptake, dependence on AI fluency, diagnostic use of ChatGPT, and regulated prompting. The second layer was Activity Theory-informed. At this stage, the focused categories were interpreted in relation to mediation, object, rules, community, division of labor, and contradiction. This second layer helped examine how ChatGPT changed the distribution of writing work and how tensions emerged between producing a polished paragraph and developing academic writing competence. Table 3 summarizes the analytic procedure.

Table 3. *Summary of the Data Analysis Procedure*

Analysis cycle	Main analytic focus	Examples of codes/categories	Main data sources
Cycle 1: Coding practical uses of ChatGPT	Identifying what students used ChatGPT for during writing tasks	Brainstorming, outlining, topic sentence revision, grammar correction, vocabulary improvement, sentence reformulation, coherence improvement, cohesion repair, idea expansion, feedback seeking, translation, style improvement, full-text generation	ChatGPT logs, draft-revision pairs, reflective logs

(Continued)

Analysis cycle	Main analytic focus	Examples of codes/categories	Main data sources
Cycle 2: Coding student responses to AI output	Examining how students treated ChatGPT suggestions	Accepting suggestions, modifying AI-generated text, rejecting suggestions, copying closely, asking for clarification, comparing AI feedback with teacher feedback, questioning AI accuracy, using ChatGPT to avoid difficult writing decisions	ChatGPT logs, revised paragraphs, reflective logs, semi-structured interviews, stimulated recall interviews
Cycle 3: Activity Theory-informed interpretation	Identifying tensions in the writing activity system	Learning versus outsourcing, assistance versus dependence, teacher expectations versus AI suggestions, AI fluency versus student voice, correction versus understanding, academic integrity versus convenience	Full dataset, including interviews, writing artifacts, ChatGPT records, field notes

Themes were developed by comparing evidence across interviews, ChatGPT logs, reflective accounts, draft-revision pairs, stimulated recall interviews, and field notes. The first research question was addressed mainly through patterns identified in Cycle 1 and Cycle 2, while the second research question was addressed through the Activity Theory-informed interpretation in Cycle 3. Particular attention was given to convergence and divergence across data sources. For example, a student claim that ChatGPT was used only as support was checked against the prompt record, the degree of textual overlap between draft and revision, and the stimulated recall explanation. Similarly, evidence of more regulated use was retained only when it was visible in both the interaction record and the student explanation of the revision decision. Divergent cases, including cases where students continued to depend heavily on AI-generated wording, were retained in the analysis rather than forced into a linear developmental pattern.

Trustworthiness was supported through triangulation, reflexive memo writing, peer debriefing, and an audit trail. Triangulation was achieved by comparing what students said in interviews and reflections with what they wrote in drafts and what they recorded in ChatGPT logs. Reflexive memos were written during coding and theme development to document analytic decisions and researcher assumptions. An audit trail was maintained through organized records of data collection procedures, coding decisions, theme development, and selected examples from the dataset. Themes were retained only when they were supported by more than one type of data, and representative excerpts were selected from interviews, reflective logs, ChatGPT interactions, and writing samples. During the later stage of analysis, selected coded excerpts and theme interpretations were discussed among the authors to examine whether the interpretations were adequately supported by the dataset. These discussions focused particularly on uncertain cases, such as whether a revision represented selective uptake, close copying, or emerging appropriation. The purpose was not to calculate inter-coder reliability, which is not required in reflexive thematic analysis, but to strengthen interpretive transparency and reduce overdependence on a single reading of the data.

Findings

Three major themes were identified from the analysis. These themes explain how ChatGPT entered students' academic writing activity, how dependence on AI became both a practical support and a learning risk, and how teacher mediation helped regulate the use of ChatGPT within the course. The findings are presented through thematic interpretation, cross-case patterns, and selected process-level evidence from ChatGPT logs, draft-revision pairs, reflective writing logs, stimulated recall interviews,

Table 4. *Cross-case Patterns in ChatGPT-mediated Writing Practices*

Pattern identified across the course	Main evidence in the dataset	Interpretation
Broad product-oriented prompting in early tasks	Early logs included requests such as “write a paragraph,” “make it academic,” or “correct my paragraph.”	ChatGPT was initially positioned as a substitute for difficult composing work.
Close uptake of AI-generated wording	Several early draft-revision pairs showed revised sentences that were close to ChatGPT output.	The tool improved visible fluency, but student control over wording was sometimes limited.
Task-specific prompting in later tasks	Later prompts asked about topic sentence clarity, supporting details, paragraph connection, or whether one idea was unrelated.	Students began to use ChatGPT more diagnostically and selectively.
Modification of AI suggestions	Some students changed AI wording to fit classroom topics, personal examples, major-related content, or paragraph purpose.	AI output became a source of options rather than a final text.
Continued dependence on AI wording	A smaller group continued to rely on ChatGPT for academic vocabulary, idea development, or sentence reformulation.	Movement toward appropriation was uneven rather than complete.
Teacher-regulated AI use	Logs and reflections showed later restrictions such as “do not write full paragraph” or “do not rewrite.”	Classroom rules and teacher modeling reorganized the division of labor between student and AI.

and teacher field notes. Table 4 provides a cross-case overview of the main patterns identified across the ten participants. The table is not intended to quantify the study statistically, but to make the spread of the qualitative patterns more transparent.

From Substitution to Scaffolding: Developing AI-use Literacy in Academic Writing

The first theme concerns the gradual change in how students used ChatGPT during the academic writing course. In the early weeks, students mostly approached ChatGPT as a product-generating or correction tool. Their interaction logs showed broad prompts such as “write a paragraph,” “correct my paragraph,” “make it academic,” or “improve my writing.” These prompts suggested that students were not yet using ChatGPT to think through writing problems, but often expected the tool to solve the problem for them. This early pattern was connected to their proficiency and limited confidence in academic writing. Students found paragraph writing difficult because they had to control topic sentences, supporting details, grammar, vocabulary, coherence, and academic style at the same time.

“At the beginning, I did not know how to start the paragraph. I wrote the topic in ChatGPT and asked it to write one paragraph. I thought this was helpful because the paragraph was better than mine.” (S2, mid-course interview)

“I used ChatGPT first for correcting grammar. I just wrote, ‘correct my paragraph.’ I did not know how to ask about topic sentence or supporting details. I only wanted the paragraph to be correct.” (S4, semi-structured interview)

“Sometimes I copied the sentence because it sounded academic. I knew the meaning generally, but I could not write like that by myself.” (S6, stimulated recall interview)

The ChatGPT interaction logs and draft-revision pairs supported these accounts. In several early tasks, revised paragraphs became more fluent and grammatically accurate after ChatGPT use, but some revisions were close to AI-generated output. During stimulated recall interviews, students could often explain the general meaning of the revised paragraph but had difficulty explaining why particular lexical or syntactic changes had been made. ChatGPT therefore improved the visible quality of some texts before students had developed full control over the revisions.

A representative early example comes from S3 in second week. The task required students to write a paragraph about the role of technology in language learning. S3 used ChatGPT before developing an independent paragraph structure and asked for a complete academic paragraph. However, the subsequent revision was not pure copying because the student selected parts of the AI response and removed content that did not fit the class discussion.

Table 5. *Process Evidence from Early Product-oriented ChatGPT Use*

Writing-process element	Evidence from S3, Week 2
Student prompt	<i>"I need write a short paragraph about [how] technology helps language learning. Please give me [a] good academic paragraph, not long, with topic sentence and examples."</i>
ChatGPT response excerpt	Technology plays an important role in language learning because it gives students access to many educational resources. For example, learners can use online dictionaries, grammar websites, videos, and language-learning applications to improve their English outside the classroom.
Submitted paragraph	Technology plays an important role in language learning because it gives students lots of access to much useful learning resources. By online dictionaries for example, educational videos, and language-learning apps, these students can improve vocabulary and their grammar. These tools also can make learning more easy because students can continue practicing English at home when they are not in the classroom.
Reflective account	<i>I first asked ChatGPT because I did not know how to make my paragraph academic. I used and copied its organization [i.e. the paragraph written by AI tool], but I changed some examples and words in my own paragraph. I think ChatGPT help[ed] me write better, but I still need to learn how to make this structure by myself.</i>

This example illustrates the early form of mediation in the activity system. ChatGPT helped S3 move from a simple draft to a more organized paragraph, but the object of activity was still mainly the production of a more acceptable text. The reflective account also shows an emerging distinction between using AI to improve a paragraph and learning how to construct such a paragraph independently.

Across the course, this pattern changed for several participants. As students completed repeated writing tasks and received teacher guidance on paragraph unity, topic sentences, supporting details, coherence, and academic style, their prompts became more focused. Instead of asking ChatGPT to produce a complete paragraph, some students began asking whether their topic sentence was clear, whether supporting details were related to the main idea, whether a sentence was too informal, or how two ideas could be connected more logically.

"Later I understood that I should write first. Then I can ask ChatGPT about one problem. For example, I asked if my topic sentence is clear. This was more useful than asking it to write everything." (S1, final semi-structured interview)

“In the first tasks, my prompts were very general. After teacher showed examples, I asked more exact questions. I asked ChatGPT, ‘Are my examples connected to my main idea?’ Then I could understand my problem better.” (S8, reflective writing log)

“I did not use all the answer. I asked ChatGPT to give one more supporting detail, but I changed it because the example was not from my own experience.” (S5, stimulated recall interview)

In the early tasks, revision often meant accepting a corrected or rewritten version. In later tasks, some students used ChatGPT to compare alternatives, clarify why a sentence was weak, or evaluate whether the paragraph was coherent. Reflective writing logs also showed growing awareness of the difference between using ChatGPT to finish a task and using it to learn from the task.

“When ChatGPT only corrected my sentence, I did not learn much. So I started to ask, ‘Why is this sentence wrong?’ Then I could see the grammar problem.” (S3, reflective writing log)

“The AI sentence was more beautiful, but it was not exactly my idea. I used only part of it and kept my meaning.” (S10, stimulated recall interview)

“I learned that ChatGPT is useful when I know what I want. If I only say ‘make it better,’ it changes many things and I become confused.” (S8, final semi-structured interview)

This theme shows that ChatGPT was first taken up as a substitute for difficult writing work but gradually became a scaffold for more specific writing problems for several participants. In Activity Theory terms, the mediational role of ChatGPT changed over time. At first, the tool tended to take over parts of the writing activity. Later, it began to mediate students’ engagement with the object of academic writing by helping them notice problems, compare choices, and revise more consciously. This movement was not complete, but it indicated a developing form of AI-use literacy within the course.

Dependence as Shortcut and Tension: Learning Responsibility Under AI Convenience

The second theme concerns the tension between the practical usefulness of ChatGPT and the risk of dependence. Students repeatedly described ChatGPT as helpful because it reduced the difficulty of academic writing. It helped them find vocabulary, correct grammar, generate ideas, organize paragraphs, and make their texts sound more academic. For intermediate EFL students, these forms of support addressed real difficulties. However, the same convenience also created a central tension in the activity system: ChatGPT helped students produce better-looking paragraphs, but it could also reduce their responsibility for making writing decisions themselves.

“When I cannot find academic words, I ask ChatGPT. It gives better words very fast. Without it, I spend much time and still I am not sure.” (S7, semi-structured interview)

“The difficult part for me is supporting details. Sometimes I have an idea, but I cannot develop it. ChatGPT gives examples, and then I can continue.” (S9, reflective writing log)

“I used ChatGPT more when the topic was difficult. If I had no idea, I asked it to give me points. It helped me, but sometimes the points were not really my thinking.” (S3, mid-course interview)

The draft-revision pairs showed how this dependence worked in practice (Table 6). In some cases, students' initial drafts were short, underdeveloped, or grammatically problematic, while their revised paragraphs became much more fluent after ChatGPT use. At the same time, stimulated recall interviews revealed that students did not always understand the changes fully. Some accepted AI suggestions because they sounded "better," "more academic," or "more correct," even when they could not explain the specific change. For example, this was the case for one of the participants in the fourth week illustrates this tension clearly. The writing topic was advantages and disadvantages of online education. S4 had an initial paragraph with relevant ideas, including studying from home and internet problems, but the student asked ChatGPT to make the paragraph academic and add a disadvantage. The revised version became more fluent, yet the student's reflective account suggested dependence on AI wording because the AI sentence was accepted mainly because it sounded better.

Table 6. *Process Evidence of Dependence on Fluent AI Output*

Writing-process element	Evidence from S4, Week 4
Initial draft	"Online education has advantages and disadvantages. It is good because students can study at home. They do not need go to university every time. But online education also has problem. Some students do not listen carefully and internet sometimes not work."
Student prompt	"Make this text [my paragraph] academic. My paragraph is too simple. Also add one sentence about disadvantage."
ChatGPT response	Online education provides flexibility because students can learn from different places and manage their own schedules. However, it may reduce direct interaction between teachers and students, which can make some learners feel less supported.
Final submitted version	Online education has some advantages and some disadvantages for university students. One important advantage that should be talked about is its flexibility because many students can study from home and manage their time more easily. However, online education may reduce direct interaction between teachers and their students. Also, internet problems and connections can interrupt learning and make lessons difficult to follow.
Reflective account	"ChatGPT made my paragraph more academic. I added many sentences because my own paragraph was simple and short. After teacher gave me feedback I saw that some sentences were not so good, so I added internet problem because it was my own idea."

This example shows that dependence was not a simple case of misuse. S4 already had relevant content in the initial draft, but lacked the linguistic resources to express it in academic form. ChatGPT therefore functioned as a shortcut to academic fluency. The tension appeared when the AI version became more authoritative than the student's own idea development. The later addition of the internet-problem sentence after teacher feedback shows how teacher mediation helped return part of the writing responsibility to the student.

"I accepted this sentence because it sounded better. But when I read it again, I was not sure about one word. I knew the general meaning, but not exactly." (S4, stimulated recall interview)

"ChatGPT made my paragraph very formal. I liked it, but some words were not words I usually use. I think maybe it was too high for my level." (S10, semi-structured interview)

“Sometimes I used the AI version because I thought it must be correct. Later I saw that it changed my idea a little.” (S6, reflective writing log)

This pattern revealed a tension between fluency and ownership. Students wanted their paragraphs to sound academic, but they also felt uncertain when the final text no longer sounded like their own writing. Some students believed that a text remained theirs if they wrote the first draft and used ChatGPT only for correction. Others felt less ownership when ChatGPT changed sentence structure, vocabulary, or supporting details too much.

“If I write first and ChatGPT only corrects grammar, I feel it is my writing. But if it changes many sentences, I feel maybe it is not completely mine.” (S1, final semi-structured interview)

“I think it is my paragraph when I choose and change the suggestions. But if I copy all, then it is ChatGPT paragraph.” (S5, stimulated recall interview)

“The problem is that AI writes better than me. When I see the better version, I want to use it. But then I ask myself if I learned something or only copied.” (S8, reflective writing log)

The central contradiction was therefore between two possible objects of the writing activity. One object was to produce a polished paragraph that looked accurate and academic. ChatGPT supported this object quickly. The other object was to develop academic writing competence through planning, drafting, revising, and understanding writing choices. This object required slower and more active engagement. When students used ChatGPT to avoid difficult composing decisions, the first object became dominant. When they used ChatGPT to ask for explanation, evaluate alternatives, or revise their own drafts, the two objects became more aligned.

The data also showed that students' dependence did not develop in the same way. Around half of the participants moved toward more regulated ChatGPT use, while a smaller group of two or three students continued to rely heavily on AI-generated wording, especially for vocabulary, idea development, and sentence reformulation. Their logs continued to include broad prompts and large-scale rewriting. Other students gradually moved toward more regulated use. They wrote their own first drafts, used ChatGPT for specific problems, rejected suggestions that changed their meaning, and avoided words they could not explain.

“Now I use ChatGPT after my own writing. Before, I asked it to write first. I think this is different because now I have my own paragraph and AI only helps me improve it.” (S5, final semi-structured interview)

“I still need ChatGPT for grammar, but I do not copy everything. If I do not understand the sentence, I do not use it.” (S8, reflective writing log)

“For me, it is still difficult because the AI version is always better. I try to change it, but sometimes I depend on it too much.” (S6, final semi-structured interview)

This theme shows that dependence was not simply a negative outcome. It was a practical response to the difficulty of academic writing, but it became problematic when the tool reduced students' responsibility for understanding and controlling their texts. In Activity Theory terms, ChatGPT changed the division of labor in the writing activity. Parts of idea generation, language selection, organization, and

revision were transferred from the student to the tool. The major tension concerned how much of this redistribution functioned as scaffolding and how much became outsourcing.

Teacher-mediated Appropriation: Reorganizing the AI-supported Writing Activity System

The third theme concerns the role of teacher mediation in shaping students' movement toward more productive use of ChatGPT. The data showed that students did not automatically learn to use ChatGPT effectively because they had access to it on their smartphones or laptops. Access made AI support available, but teacher mediation made its use more pedagogically meaningful. Teacher guidance, AI-use rules, prompt modeling, feedback, and classroom dialogue helped students distinguish support from substitution and encouraged them to treat ChatGPT output as something to evaluate rather than copy.

At the beginning of the course, students were uncertain about acceptable AI use. Some thought any use of ChatGPT might be considered cheating. Others believed that using AI was acceptable as long as they changed a few words. These uncertainties were visible in the interviews and teacher field notes. Students needed explicit guidance on what kinds of AI support were permitted and why they had to keep records of their prompts, responses, and revisions.

"Before teacher explained, I did not know if using ChatGPT was cheating. Then I understood that we can use it, but we must show how we used it." (S2, mid-course interview)

"Teacher said ChatGPT can help, but it cannot be the writer. After that I tried to write first and use ChatGPT after my draft." (S7, reflective writing log)

"At first, I thought if I change some words, it becomes my paragraph. In class, we discussed that I must understand and control the paragraph." (S9, stimulated recall interview)

The AI-use rules created boundaries around tool use. Students were required to write an initial draft, keep ChatGPT records, and explain their revisions. These procedures made AI use visible and accountable. Several students reported that the requirement to submit interaction logs and reflective writing logs made them more careful because they could not simply copy AI output without explanation.

"Because we had to submit the ChatGPT log, I became more careful. I could not only copy. I had to write why I used the suggestion." (S1, final semi-structured interview)

"The reflective log made me think about my use. Sometimes I saw that I used ChatGPT too much, and I did not learn from that part." (S4, reflective writing log)

"When teacher asked us to explain the change, I started to ask ChatGPT for explanation, not only correction." (S5, final semi-structured interview)

Teacher feedback also helped students evaluate ChatGPT output. The interviews and stimulated recall data showed that students often trusted ChatGPT because its responses were fluent and confident. However, classroom discussion and teacher feedback helped them notice that AI suggestions were not always appropriate for the task. ChatGPT sometimes added general statements, changed the intended meaning, used vocabulary beyond the student level, or weakened paragraph unity. When the teacher drew attention to these problems, students began to understand that fluency did not always mean suitability.

“ChatGPT gave me a good sentence, but teacher showed that it was not connected to my topic sentence. I did not notice because the grammar was correct.” (S3, stimulated recall interview)

“The AI sentence was more academic, but it changed my meaning. After teacher explained this, I checked meaning first, not only grammar.” (S8, final semi-structured interview)

“Teacher feedback was more connected to our lesson. ChatGPT corrected many things, but sometimes not the main problem.” (S6, semi-structured interview)

The clearest evidence of teacher-mediated regulation appeared in later prompts where students explicitly restricted ChatGPT’s role (Table 7). For example, S8 in week 8 asked ChatGPT not to rewrite the paragraph but only to check whether the supporting details were connected to the topic sentence. This kind of prompt differed from the broad rewriting requests seen in earlier tasks.

Table 7. *Process Evidence of Regulated ChatGPT Use*

Writing-process element	Evidence from S8, Week 8
Initial draft excerpt	“Independent learners do not wait for teacher. They plan their study, check their mistakes, and use resources. Time management is also important. If students are independent, they can learn better because they know what they need.”
Student prompt	“Please check connection between topic sentence and details. Dont rewrite my paragraph. Just tell me if there is a problem.”
ChatGPT response excerpt	“Your first and third supporting details are clearly connected to independent learning. The second detail about time management is related, but you need to explain how managing time helps students take responsibility for their own learning.”
Final submitted version	University students can become more independent learners if they plan their study carefully, check their own mistakes in their writing or speaking, and when they use different learning resources and tools outside the classroom effectively and frequently. Moreover, time management is also very important and supports independent learning because students learn to organize their progress without waiting for teacher reminders. These can help learners take more responsibility for their development.
Reflective account	“This time I used ChatGPT only for checking. It said my time management idea needed more explanation. I revised myself. This was better because ChatGPT did not write instead of me.”

This episode shows a more developed form of appropriation because the student defined the role of the tool before receiving the response. ChatGPT was not asked to generate or rewrite the paragraph; it was asked to diagnose a specific problem. The division of labor was therefore reorganized: the student remained responsible for the paragraph, ChatGPT provided limited diagnostic feedback, and the final revision was completed by the student.

The repeated writing cycle was also important. Students drafted, used ChatGPT, revised, reflected, and discussed their writing across six topics. This repetition gave them opportunities to compare different kinds of AI use and to revise their practices. For some students, appropriation developed through this repeated cycle. They began to use ChatGPT after writing their own drafts, ask narrower questions, check whether suggestions matched teacher feedback, and avoid accepting sentences they did not understand.

“After some tasks, I had a method. First, I write my paragraph. Then I ask about topic sentence or grammar. I do not ask ChatGPT to write the whole paragraph now.” (S1, final semi-structured interview)

“I learned that ChatGPT is useful when I know my problem. If I do not know my problem, it gives many answers and I become confused.” (S8, reflective writing log)

“In the last tasks, I used ChatGPT like a helper. But I still needed teacher because teacher knows what we study in class.” (S4, final semi-structured interview)

Table 8 summarizes how teacher mediation operated across the course. These forms of mediation did not eliminate dependence, but they made AI use more visible, discussable, and accountable within the classroom activity system.

Table 8. *Teacher Mediation and Regulation of ChatGPT Use*

Form of teacher mediation	Classroom function	Evidence in student practice
AI-use rules	Established boundaries between support and substitution	Students were required to draft, keep logs, and explain AI-supported changes
Prompt modeling	Showed differences between broad rewriting prompts and focused writing questions	Later prompts included restrictions such as “do not write full paragraph” or “do not rewrite”
Teacher feedback	Helped students evaluate whether AI suggestions matched task goals	Students revised AI-generated sentences that were fluent but too general or not connected to the paragraph
Reflective logs	Required students to explain acceptance, modification, or rejection of AI suggestions	Students reported noticing when they had used ChatGPT too much or accepted wording they could not explain
Classroom dialogue	Made authorship, fluency, suitability, and responsibility open topics of discussion	Students began distinguishing correction from learning and polished wording from ownership

This theme shows that appropriation was not produced by the tool alone. It emerged through the organization of the course activity system. Teacher rules clarified acceptable use, teacher feedback helped students judge AI suggestions, reflective logs required students to explain their decisions, and classroom dialogue made the limits of AI output visible. In Activity Theory terms, teacher mediation reshaped the rules and division of labor in the system. ChatGPT remained a powerful mediational tool, but the teacher helped prevent it from replacing the object of the course. Instead, AI use was gradually redirected toward the development of academic writing competence.

Discussion

This study examined how ChatGPT was taken up as writing support within an Uzbek university academic writing course and what tensions shaped students’ movement from AI assistance toward appropriation. The findings showed that ChatGPT did not enter the writing course as a stable or uniformly used tool. In the early writing tasks, students often used it to generate paragraphs, correct grammar, make language more academic, or reduce the difficulty of beginning a text. Across the course, however, several students

began to use ChatGPT more selectively, especially for checking topic sentences, developing supporting ideas, diagnosing coherence problems, asking for explanations, and revising specific parts of their own drafts. This pattern indicates that AI-mediated writing support should not be understood only in terms of the technical affordances of ChatGPT. Its pedagogical value depends on how students position the tool within the writing activity, how much responsibility they retain over meaning and revision, and how classroom rules and teacher mediation shape the division of labor between student and AI.

The first finding concerns the movement from broad substitution-oriented use toward more scaffolded uses of ChatGPT. This finding is consistent with research showing that ChatGPT can support L2 writing by providing immediate help with brainstorming, grammar, vocabulary, organization, revision, and feedback (Mahapatra, 2024; Meniado et al., 2024; Song & Song, 2023; Teng, 2024; Yan, 2023). It also aligns with recent studies showing that AI-mediated writing support becomes more useful when embedded in structured writing tasks rather than treated as unrestricted text generation (Al-Sofi, 2026; Emerson et al., 2026; Fadilah, 2026; Phuong Linh et al., 2026; Tran, 2026). The present study adds a process-oriented account of how this shift occurred in a classroom activity system. Students did not simply become better AI users because they had repeated access to ChatGPT. Their prompts became more focused when they had clearer writing goals, teacher-modeled examples of useful prompts, and repeated opportunities to compare AI output with their own drafts and classroom expectations. This suggests that AI-use literacy in L2 writing is closely tied to writing knowledge itself. Students could ask better questions of ChatGPT when they better understood topic sentences, supporting details, coherence, cohesion, and revision.

The second finding concerns dependence as both a practical resource and a learning risk. For intermediate EFL writers, dependence on ChatGPT was not merely a sign of misuse. It reflected real linguistic and rhetorical constraints, including limited vocabulary, uncertainty about academic style, weak control over sentence structure, and difficulty developing supporting ideas. In this respect, the findings extend second language writing research that treats academic writing as a demanding process involving language control, rhetorical organization, feedback interpretation, and revision (Ferris, 2014; Hyland, 2019; Manchón, 2011; Silva, 1993). At the same time, the data showed that ChatGPT could produce fluent and apparently authoritative revisions that students were not always able to explain or control. This finding supports earlier concerns that AI-generated feedback and revision may be generic, excessive, inaccurate, weakly contextualized, or difficult for learners to evaluate (Guo & Wang, 2024; Lin & Crosthwaite, 2024; Steiss et al., 2024; Wang et al., 2024). The important point is that dependence should not be treated as a single problem. It functioned as scaffolding when students used ChatGPT to notice problems, request explanations, compare alternatives, and revise their own drafts. It became closer to outsourcing when students accepted AI wording mainly because it sounded better, when they could not explain the revised language, or when the AI version displaced their intended meaning. From an Activity Theory perspective, this pattern reveals a contradiction between two objects of the writing activity. One object was to produce an acceptable academic paragraph that sounded accurate, fluent, and organized. ChatGPT supported this object quickly and visibly. The other object was to develop academic writing competence through planning, drafting, revising, and understanding writing choices. This object required slower and more reflective engagement. The tension between these two objects explains why ChatGPT could be experienced as both helpful and problematic. It reduced the burden of writing, but it also redistributed parts of the writing work from the student to the tool. The pedagogical issue was therefore not whether students used ChatGPT, but which parts of the writing process were delegated to it and whether students could still account for their decisions.

The third finding highlights teacher mediation as the key condition that made ChatGPT use more pedagogically meaningful. The study showed that access to ChatGPT did not automatically produce responsible or developmentally useful writing practices. Students needed classroom rules that clarified

acceptable AI use, prompt modeling that showed how to ask focused writing questions, feedback that helped them evaluate AI output, and reflective logs that required them to explain accepted, modified, or rejected suggestions. This finding supports previous work suggesting that generative AI has greater pedagogical value when integrated into structured instruction and human feedback ecologies (Asadi et al., 2025; Ghafouri et al., 2024; Guo & Wang, 2024; Song & Song, 2023). It also extends process-oriented research on AI-assisted L2 writing by showing how teacher mediation can reorganize the division of labor within a writing course (Jacob et al., 2024; Koltovskaia et al., 2024; Zou et al., 2025). The teacher did not simply allow or prohibit AI use. Rather, teacher mediation made AI use visible, discussable, and accountable through the combined effect of rules, prompt modeling, reflective logs, and feedback. This point is important because the study does not show that one form of mediation independently caused appropriation; instead, it shows that students' more regulated AI use emerged from the configuration of mediational practices organized across the course.

The findings also contribute to current debates on authorship and academic integrity in AI-supported writing. Students did not define authorship only according to whether ChatGPT had been used. Instead, they linked ownership to drafting first, choosing suggestions, modifying AI output, preserving intended meaning, avoiding words they could not explain, and being able to justify revisions. This suggests that authorship in AI-mediated L2 writing may be better understood as control over meaning and revision responsibility rather than as a simple distinction between human writing and AI writing. Such a view does not remove concerns about academic integrity, but it shifts attention toward pedagogical practices that help students document, evaluate, and explain AI-supported writing decisions. In this study, reflective logs, stimulated recall, teacher feedback, and prompt restrictions helped make authorship a matter of accountable participation in the writing process.

The findings have several pedagogical implications for AI-mediated academic writing instruction. First, teachers should avoid treating ChatGPT either as a prohibited shortcut or as a neutral writing assistant. The results suggest that productive use depends on how the tool is positioned within the writing task. Students benefit when they are asked to draft first, identify a specific writing problem, and use ChatGPT for limited support rather than full-text generation. Second, AI-use rules should be procedural rather than only moral. Instead of simply warning students not to plagiarize, teachers can require prompt records, draft-revision pairs, reflective notes, and short explanations of accepted, modified, and rejected suggestions. Such procedures help make AI-supported writing visible and allow teachers to distinguish scaffolding from outsourcing. Third, prompt modeling should be integrated into writing pedagogy. Students need examples of questions that ask ChatGPT to check coherence, explain grammar, compare sentence versions, or identify unrelated supporting details, because these prompts keep the student in control of the writing process. Fourth, teacher feedback remains central because ChatGPT may improve sentence fluency while missing paragraph unity, task relevance, level appropriateness, or intended meaning. For this reason, AI feedback should be treated as one feedback source within a wider classroom ecology rather than as a replacement for teacher response. Finally, AI-use literacy should be taught as part of academic writing development. Learners need support not only in using ChatGPT, but also in deciding when not to use it, when to keep simpler student-owned wording, and how to explain why a revision improves the text without weakening authorial responsibility.

Conclusion

This study showed that ChatGPT-mediated academic writing among Uzbek university EFL students involved a partial and uneven movement from substitution-oriented use toward more regulated appropriation. Students initially relied on ChatGPT to generate, correct, or rewrite text because academic

writing exceeded their confidence and available linguistic resources. Across the course, repeated writing tasks, teacher guidance, AI-use rules, reflective logs, and classroom discussion helped several students use ChatGPT more selectively for explanation, idea development, coherence checking, and revision. The findings indicate that ChatGPT does not automatically support academic writing development through access alone. Its pedagogical value depends on whether learners are guided to evaluate, regulate, and explain AI-supported writing decisions. The study is limited by its small sample, single institutional context, short course duration, and reliance on classroom-generated qualitative data. The teacher-researcher role also requires cautious interpretation, although multiple data sources were used to compare student accounts with logs, drafts, stimulated recall explanations, and field notes. Future research should examine larger and more diverse EFL contexts, compare different proficiency levels, and follow learners over longer periods to understand how AI-use literacy develops over time. Further studies should also investigate how different forms of teacher mediation, including prompt modeling, draft-first rules, AI-use logs, and feedback comparison, influence authorship awareness and writing development in AI-mediated academic writing.

References

- Al-Sofi, B. (2026). The effectiveness of AI-generated feedback in enhancing students' writing proficiency: A study of Google Gemini. *Technology in Language Teaching & Learning*, 8, Article 103403. <https://doi.org/10.29140/tltl.2026.103403>
- Allen, T. J., & Mizumoto, A. (2024). ChatGPT over my friends: Japanese English-as-a-foreign-language learners' preferences for editing and proofreading strategies. *RELC Journal*. Advance online publication. <https://doi.org/10.1177/00336882241262533>
- Asadi, M., Ebadi, S., & Mohammadi, L. (2025). The impact of integrating ChatGPT with teachers' feedback on EFL writing skills. *Thinking Skills and Creativity*, 56, Article 101766. <https://doi.org/10.1016/j.tsc.2025.101766>
- Banihashem, S. K., Taghizadeh Kerman, N., Noroozi, O., Moon, J., & Drachsler, H. (2024). Feedback sources in essay writing: Peer-generated or AI-generated feedback? *International Journal of Educational Technology in Higher Education*, 21, Article 23. <https://doi.org/10.1186/s41239-024-00455-4>
- Barrett, A., & Pack, A. (2023). Not quite eye to A.I.: Student and teacher perspectives on the use of generative artificial intelligence in the writing process. *International Journal of Educational Technology in Higher Education*, 20, Article 59. <https://doi.org/10.1186/s41239-023-00427-0>
- Boudouaia, A., Mouas, S., & Kouider, B. (2024). A study on ChatGPT-4 as an innovative approach to enhancing English as a foreign language writing learning. *Journal of Educational Computing Research*, 62(6), 1289–1317. <https://doi.org/10.1177/07356331241247465>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- Braun, V., & Clarke, V. (2021). *Thematic analysis: A practical guide*. SAGE.
- Emerson, N., Holland, T., Mitchell, T. D., Shum, D., & Oga-Baldwin, W. L. Q. (2026). Embedding constrained, learner-initiated GenAI feedback in collaborative L2 writing: Targeted grammar gains with a two-week follow-up. *Technology in Language Teaching & Learning*, 8, Article 104008. <https://doi.org/10.29140/tltl.2026.104008>
- Engeström, Y. (1987). *Learning by expanding: An activity-theoretical approach to developmental research*. Orienta-Konsultit.
- Engeström, Y. (2001). Expansive learning at work: Toward an activity theoretical reconceptualization. *Journal of Education and Work*, 14(1), 133–156. <https://doi.org/10.1080/13639080020028747>

- Fadilah, E. (2026). Artificial intelligence-mediated peer collaboration in EFL argumentative writing: Exploring learners' inferential reasoning development. *Technology in Language Teaching & Learning*, 8, Article 103944. <https://doi.org/10.29140/tltl.2026.103944>
- Fan, Y., Tan, S., & Lim, G. Y. W. (2024). EAP teacher feedback in the age of AI: Supporting first-year students in EFL disciplinary writing. *Australian Journal of Applied Linguistics*, 7(3). <https://doi.org/10.29140/ajal.v7n3.1943>
- Ferris, D. R. (2014). *Treatment of error in second language student writing* (2nd ed.). University of Michigan Press.
- 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>
- Ghafouri, M., Hassaskhah, J., & Mahdavi-Zafarghandi, A. (2024). From virtual assistant to writing mentor: Exploring the impact of a ChatGPT-based writing instruction protocol on EFL teachers' self-efficacy and learners' writing skill. *Language Teaching Research*. Advance online publication. <https://doi.org/10.1177/13621688241239764>
- Guo, K., & Wang, D. (2024). To resist it or to embrace it? Examining ChatGPT's potential to support teacher feedback in EFL writing. *Education and Information Technologies*, 29, 8435–8463. <https://doi.org/10.1007/s10639-023-12146-0>
- Hwang, H., Chang, X., & Sun, J. (2025). Generative AI is useful for second language writing, but when, why, and for how long do learners use it? *Journal of Second Language Writing*, 69, Article 101230. <https://doi.org/10.1016/j.jslw.2025.101230>
- Hyland, K. (2019). *Second language writing* (2nd ed.). Cambridge University Press.
- Jacob, S. R., Tate, T., & Warschauer, M. (2024). Emergent AI-assisted discourse: A case study of a second language writer authoring with ChatGPT. *Journal of China Computer-Assisted Language Learning*. Advance online publication. <https://doi.org/10.1515/jccall-2024-0011>
- Jmaiel, H. A., Abukhait, R. O., Mohamed, A. M., Shaaban, T. S., Al-khresheh, M. H., & AL-Qadri, A. H. (2025). The role of ChatGPT in enhancing EFL students' ESP writing skills: An experimental study of gender and major differences. *Discover Education*, 4, Article 240. <https://doi.org/10.1007/s44217-025-00700-6>
- Koltovskaia, S., Rahmati, P., & Saeli, H. (2024). Graduate students' use of ChatGPT for academic text revision: Behavioral, cognitive, and affective engagement. *Journal of Second Language Writing*, 66, Article 101130. <https://doi.org/10.1016/j.jslw.2024.101130>
- Kosimov, A., & Murotova, D. (2025). Examining the effects of AI-mediated informal language learning on EFL learners' academic writing performance. *Applied Linguistics Compass*, 1(3), 75–87. <https://doi.org/10.22034/alc.2026.572024.1030>
- Leont'ev, A. N. (1978). *Activity, consciousness, and personality*. Prentice-Hall.
- Lin, S., & Crosthwaite, P. (2024). The grass is not always greener: Teacher vs. GPT-assisted written corrective feedback. *System*, 127, Article 103529. <https://doi.org/10.1016/j.system.2024.103529>
- Mahapatra, S. (2024). Impact of ChatGPT on ESL students' academic writing skills: A mixed methods intervention study. *Smart Learning Environments*, 11, Article 9. <https://doi.org/10.1186/s40561-024-00295-9>
- Manchón, R. M. (Ed.). (2011). *Learning-to-write and writing-to-learn in an additional language*. John Benjamins.
- Marzuki, Widiati, U., Rusdin, D., Darwin, & Indrawati, I. (2023). The impact of AI writing tools on the content and organization of students' writing: EFL teachers' perspective. *Cogent Education*, 10(2), Article 2236469. <https://doi.org/10.1080/2331186X.2023.2236469>
- Meniado, J. C., Duong Thi Thu Huyen, Panyadilokpong, N., & Lertkomolwit, P. (2024). Using ChatGPT for second language writing: Experiences and perceptions of EFL learners in Thailand

- and Vietnam. *Computers and Education: Artificial Intelligence*, 7, Article 100313. <https://doi.org/10.1016/j.caeai.2024.100313>
- Merriam, S. B., & Tisdell, E. J. (2016). *Qualitative research: A guide to design and implementation* (4th ed.). Jossey-Bass.
- Phuong Linh, P., Angsuwiriya, N., & Sudhinont, J. (2026). Integrating ChatGPT into Thai essay writing instruction for Vietnamese learners. *Technology in Language Teaching & Learning*, 8, Article 103649. <https://doi.org/10.29140/tltl.2026.103649>
- Punar Özçelik, N., & Yangın Ekşi, G. (2024). Cultivating writing skills: The role of ChatGPT as a learning assistant – A case study. *Smart Learning Environments*, 11, Article 10. <https://doi.org/10.1186/s40561-024-00296-8>
- Russell, D. R. (1997). Rethinking genre in school and society: An activity theory analysis. *Written Communication*, 14(4), 504–554. <https://doi.org/10.1177/0741088397014004004>
- Silva, T. (1993). Toward an understanding of the distinct nature of L2 writing: The ESL research and its implications. *TESOL Quarterly*, 27(4), 657–677. <https://doi.org/10.2307/3587400>
- Solovey, O. Z. (2024). Comparing peer, ChatGPT, and teacher corrective feedback in EFL writing: Students' perceptions and preferences. *Technology in Language Teaching & Learning*, 6(3). <https://doi.org/10.29140/tltl.v6n3.1482>
- Song, C., & Song, Y. (2023). Enhancing academic writing skills and motivation: Assessing the efficacy of ChatGPT in AI-assisted language learning for EFL students. *Frontiers in Psychology*, 14, Article 1260843. <https://doi.org/10.3389/fpsyg.2023.1260843>
- Steiss, J., Tate, T., Graham, S., Cruz, J., Hebert, M., Wang, J., Moon, Y., Tseng, W., Warschauer, M., & Olson, C. B. (2024). Comparing the quality of human and ChatGPT feedback of students' writing. *Learning and Instruction*, 91, Article 101894. <https://doi.org/10.1016/j.learninstruc.2024.101894>
- Strobl, C., Menke-Bazhutkina, I., Abel, N., & Michel, M. (2024). Adopting ChatGPT as a writing buddy in the advanced L2 writing class. *Technology in Language Teaching & Learning*, 6(1). <https://doi.org/10.29140/tltl.v6n1.1168>
- Teng, M. F. (2024). “ChatGPT is the companion, not enemies”: EFL learners' perceptions and experiences in using ChatGPT for feedback in writing. *Computers and Education: Artificial Intelligence*, 7, Article 100270. <https://doi.org/10.1016/j.caeai.2024.100270>
- Teng, M. F., & Huang, J. (2025). Incorporating ChatGPT for EFL writing and its effects on writing engagement. *International Journal of Computer-Assisted Language Learning and Teaching*, 15(1), 1–21. <https://doi.org/10.4018/IJCALLT.367874>
- Tran, H. (2026). How does AI work as a “game changer”? Self-determination and influencing factors in EFL students' use of AI for academic writing. *Technology in Language Teaching & Learning*, 8, Article 103723. <https://doi.org/10.29140/tltl.2026.103723>
- Valizadeh, M. (2026). Resilience as mediated action: An activity theory perspective on expatriate English teachers. *Applied Linguistics Compass*, 2(1), 27–37. <https://doi.org/10.22034/alc.v2i1.28>
- Valizadeh, M., Kotamjani, S. S., & Xodabande, I. (2026). Exploring Iranian university students' behavioral intention to use ChatGPT for academic purposes. *Discover Psychology*, 6, Article 335. <https://doi.org/10.1007/s44202-026-00705-8>
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.
- Wang, L., Chen, X., Wang, C., Xu, L., Shadiev, R., & Li, Y. (2024). ChatGPT's capabilities in providing feedback on undergraduate students' argumentation: A case study. *Thinking Skills and Creativity*, 51, Article 101440. <https://doi.org/10.1016/j.tsc.2023.101440>

- Yan, D. (2023). Impact of ChatGPT on learners in a L2 writing practicum: An exploratory investigation. *Education and Information Technologies*, 28, 13943–13967. <https://doi.org/10.1007/s10639-023-11742-4>
- Yin, R. K. (2018). *Case study research and applications: Design and methods* (6th ed.). SAGE.
- Zare, J., Al-Issa, A., & Ranjbaran Madiseh, F. (2025). Interacting with ChatGPT in essay writing: A study of L2 learners' task motivation. *ReCALL*, 37(3), 385–402. <https://doi.org/10.1017/S0958344025000035>
- Zou, M., Kong, D., & Lee, I. (2025). Doctoral student strategy use in GAI chatbot-assisted L2 writing: An activity theory perspective. *Journal of English for Academic Purposes*, 76, Article 101521. <https://doi.org/10.1016/j.jeap.2025.101521>