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How does AI-assisted feedback affect ESP writing for Uzbek students?

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Abstract

This study investigates the impact of AI-assisted feedback on English for Specific Purposes (ESP) writing among Uzbek university students. As AI tools like Grammarly and ChatGPT become increasingly prevalent in Uzbekistan's educational landscape, concerns emerge about over-reliance and its effects on writing autonomy. Through a qualitative survey of 42 English majors at Fergana State University, the research reveals that 70% of students regularly use AI for writing tasks, with 64% passively accepting corrections without analysis. While AI enhances grammatical accuracy and provides structural support (reported by 45% of respondents), it simultaneously creates dependency, 50% struggle with idea organization without AI assistance, and 24% report reduced independent writing skills. The study identifies a critical divide: AI improves technical writing proficiency but shows limited impact on higher-order skills like critical thinking (only 14% acknowledge skill improvement). Students propose balanced usage strategies, including post-draft AI checks and instructor-guided error analysis. These findings suggest the need for pedagogical frameworks that integrate AI as a complementary tool rather than a writing substitute. The study contributes to ESP instruction by offering evidence-based recommendations for maintaining writing autonomy while leveraging AI's benefits in Uzbekistan's rapidly digitizing education system.

Keywords: Artificial intelligence; Academic writing; Language learning; Educational technology; Student autonomy

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1. Introduction

AI-assisted feedback has been shown to significantly enhance ESP students' writing skills by improving both the quality of peer feedback and overall writing performance. Guo et al. (2024) demonstrated that integrating an AI chatbot (Eva) into peer review systems led to a substantial increase in feedback quality, particularly in key dimensions such as description and problem identification. Students who received AI-supported feedback not only provided better critiques but also improved their own writing, suggesting that engagement with AI-driven feedback fosters deeper learning. This aligns with Darvishi et al. (2023), who found that AI tools effectively scaffold peer review practices by offering

structured and objective evaluations. Additionally, AI addresses the challenge of time-consuming teacher feedback, making large-scale feedback provision more efficient (Qazi et al., 2025). In the context of ESP writing—where technical accuracy and professional communication are crucial—AI-assisted feedback offers a scalable solution to enhance students' writing proficiency while maintaining high-quality evaluations.

Beyond improving feedback quality, AI-assisted tools enhance ESP writing by fostering self-regulated learning, increasing engagement, and streamlining assessment processes. Qazi et al. (2025) highlight that AI tools like ChatGPT provide instant, detailed feedback, reducing teachers' workload while increasing student motivation. This is supported by earlier research showing that AI-driven writing aids, such as mobile applications and collaborative filtering systems, improve writing skills by enhancing critical thinking and vocabulary acquisition (Haerazi et al., 2020; Zhang, 2022). Similarly, automated writing evaluation (AWE) systems have been found to significantly improve students' writing performance while maintaining efficiency in feedback provision (Sun & Li, 2020). Gamification and task-based AI approaches further contribute to engagement and skill enhancement, as demonstrated by Pingmuang and Koraneekij (2022). The integration of AI into ESP writing instruction thus presents a transformative opportunity, enabling students to refine technical communication skills through interactive, adaptive learning experiences.

One of the most notable benefits of AI-assisted feedback is its ability to provide personalized, immediate, and targeted corrections, leading to improved grammatical accuracy and composition skills. Jamshed et al. (2024) found that students receiving AI-generated feedback via ChatGPT showed a greater reduction in common writing errors—such as third-person singular present tense, past tense, and possessives—compared to those receiving traditional teacher feedback. This aligns with Qazi et al.'s (2025) findings on AI's role in facilitating self-regulated learning and improving engagement. Moreover, Jamshed et al. (2024) noted that students preferred AI feedback, recognizing its effectiveness in refining their writing skills. The ability of AI tools to provide instant and structured feedback allows ESP learners to address technical language challenges efficiently, enhancing their ability to produce professional and grammatically accurate writing. This suggests that integrating AI-assisted feedback into ESP courses can complement traditional teaching by fostering autonomous learning while ensuring consistency and scalability in feedback provision.

However, while AI-assisted feedback excels in improving linguistic accuracy and efficiency, its impact on higher-order cognitive skills remains limited. Lee (2024) found that Korean university students who used ChatGPT for writing business cover letters reported high overall satisfaction ($M = 4.70/5$), particularly praising its benefits in language improvement, personalized learning, and efficiency. Yet, critical thinking ($M = 3.59$), creativity ($M = 3.54$), and self-directed learning ($M = 3.72$) scored significantly lower, suggesting that AI feedback alone may not sufficiently develop these skills. These findings align with Jamshed et al.'s (2024) observations on AI's strengths in grammatical correction but also highlight a gap in fostering deeper cognitive engagement. To maximize AI's potential in ESP

writing, instructors should integrate AI feedback with activities that promote originality, iterative revisions, and critical analysis, ensuring students develop both technical proficiency and higher-order thinking skills essential for professional communication.

Another significant advantage of AI-assisted feedback is its positive influence on students' self-esteem and motivation by providing personalized support and reducing anxiety. Kabilovna and Aleksandrovna (2024) found that Uzbek EFL learners at Fergana State University and TUIT Fergana Branch reported increased confidence due to AI's ability to offer individualized feedback and a stress-free learning environment. This aligns with previous research demonstrating that AI tools improve linguistic accuracy and efficiency (Lee, 2024; Jamshed et al., 2024) while fostering engagement through adaptive learning (Qazi et al., 2025). However, concerns about overreliance on AI and the diminishing role of traditional learning methods suggest the need for balanced integration. Aleksandrovna (2024) found that while over 70% of students frequently use AI tools—reporting improved fluency and idea generation—excessive dependence can hinder problem-solving abilities. Thus, educators must ensure that AI complements rather than replaces instructor guidance, preserving opportunities for critical thinking and human interaction.

Despite its benefits, AI-assisted feedback in ESP writing raises concerns about over-reliance and reduced critical thinking skills. Aleksandrovna (2024) found that while AI tools enhance writing fluency and expose students to diverse linguistic structures, they also risk creating dependency, with some students struggling to produce original content without AI assistance. Similarly, Lee (2024) observed lower scores in self-directed learning and critical thinking among AI users, reinforcing the need for pedagogical strategies that encourage independent thought. Etaat (2024) further supports this, noting that while AI tools like Wordtune and InstaText improve mechanical and lexical accuracy, they have a weaker impact on higher-order skills such as task fulfillment and organization. These findings suggest that while AI-assisted feedback is invaluable for linguistic improvement, it must be supplemented with instructor-led activities that foster deeper cognitive engagement and creativity.

Finally, AI-assisted feedback fosters student autonomy by enabling personalized, self-paced learning, though it also risks reducing meaningful instructor interaction. Aleksandrovna (2024) found that 73% of master's students at Fergana State University reported increased self-direction due to AI tools, as they could focus on difficult writing aspects at their own pace. This aligns with Etaat's (2024) findings that AI accelerates text generation while improving grammar and mechanics. However, 27% of students in Aleksandrovna's (2024) study expressed concerns about diminished human interaction, echoing Lee's (2024) warning that AI cannot fully replicate the depth of instructor feedback. Some students also felt AI lacked the personalization of human guidance, reinforcing the argument that AI should complement—not replace—traditional teaching methods. To maximize AI's benefits, ESP writing courses should integrate AI-driven feedback with structured instructor-led discussions, ensuring a balance between autonomy and meaningful human mentorship.

Artificial Intelligence (AI)-assisted feedback has emerged as a transformative tool in English for

Specific Purposes (ESP) writing instruction, offering scalable, personalized, and immediate corrections to learners. Recent studies demonstrate that AI enhances writing proficiency by improving grammatical accuracy (Jamshed et al., 2024), fostering self-regulated learning (Qazi et al., 2025), and increasing student engagement (Kabilovna & Aleksandrovna, 2024). For instance, AI chatbots like Eva have been shown to elevate peer feedback quality, leading to better writing outcomes (Guo et al., 2024). Similarly, tools such as ChatGPT reduce common errors in technical writing while saving instructors time (Jamshed et al., 2024). However, limitations persist, particularly in developing higher-order cognitive skills like critical thinking and creativity (Lee, 2024; Etaat, 2024).

In Uzbekistan, AI adoption in education is rapidly increasing, particularly among youth who rely heavily on tools like ChatGPT for academic writing. While this trend enhances efficiency and linguistic accuracy (Aleksandrovna, 2024), it also raises concerns about over-dependence, declining independent thinking, and reduced problem-solving abilities (Aleksandrovna, 2024; Lee, 2024). Despite these challenges, there is a striking lack of localized research on how AI-assisted feedback impacts Uzbek ESP learners, leaving educators without evidence-based strategies to balance AI integration with cognitive skill development.

The growing reliance on AI for academic writing in Uzbekistan threatens to undermine students' critical thinking and autonomy. Studies indicate that while AI improves writing mechanics (Etaat, 2024) and confidence (Kabilovna & Aleksandrovna, 2024), excessive use correlates with lower self-directed learning (Lee, 2024) and reduced instructor interaction (Aleksandrovna, 2024). Teachers report concerns about students' diminishing ability to analyze, revise, or generate original content without AI assistance. Yet, almost no empirical studies examine this issue in the Uzbek context, creating a gap in understanding how AI-assisted feedback should be implemented to maximize benefits while mitigating risks.

The integration of AI-assisted feedback in ESP writing instruction shares parallels with the challenges and opportunities observed in online language assessment (OLA) systems, as discussed by Sharma and Holbah (2022). Both AI tools and OLA platforms emphasize efficiency, scalability, and immediate feedback, yet they also face concerns about academic integrity, cognitive skill development, and technological reliability. For instance, while AI-driven feedback enhances grammatical accuracy and peer review quality (Guo et al., 2024; Jamshed et al., 2024), OLA systems like Blackboard Learning provide rapid, error-free evaluations but struggle with issues such as randomized question orders, screen-based reading difficulties, and student cheating (Sharma & Holbah, 2022). These findings suggest that while automated systems improve logistical efficiency, they may inadvertently compromise deeper learning engagement, reinforcing the need for structured human oversight.

Moreover, the ethical and pedagogical dilemmas surrounding AI-assisted writing mirror those in OLA. Just as Sharma and Holbah (2022) highlight concerns about students' over-reliance on online assessments leading to compromised validity, studies on AI feedback warn of diminished critical thinking and creativity when learners depend too heavily on automated corrections (Lee, 2024; Aleksandrovna, 2024). Both contexts reveal a tension between technological convenience and

educational integrity—while AI and OLA streamline assessment processes, they risk fostering superficial learning if not balanced with instructor-led reflection and skill-building activities. Future research should explore hybrid models that combine AI or OLA efficiency with structured teacher interventions to ensure both accuracy and higher-order cognitive development in language learning.

The challenges identified in OLA systems—such as internet instability, student disengagement, and academic dishonesty—resonate with the limitations of AI-assisted feedback in ESP contexts. For example, just as randomized online test questions may disrupt student focus (Sharma & Holbah, 2022), AI-generated feedback may prioritize surface-level corrections over nuanced writing development (Etaat, 2024). However, both technologies also offer transformative potential: OLA's instant scoring and AI's personalized feedback can empower self-paced learning, provided they are supplemented with human guidance to address gaps in critical analysis and originality.

The integration of AI-assisted feedback in ESP writing instruction presents an opportunity to address not only linguistic accuracy but also intercultural competence—an essential skill in global professional communication. Sharma (2020) emphasizes the need for EFL/ESP learners to develop intercultural awareness to navigate diverse communicative contexts effectively. While AI tools excel in providing grammatical corrections and structured feedback (Jamshed et al., 2024; Qazi et al., 2025), they currently lack the cultural sensitivity required to guide students in adapting their writing to different cultural norms. For instance, AI may correct syntactic errors in a business email but fail to highlight culturally inappropriate phrasing or rhetorical expectations in international correspondence. This gap suggests that AI-assisted feedback should be supplemented with instructor-led discussions on intercultural pragmatics, ensuring that students develop both technical proficiency and sociolinguistic adaptability.

Sharma and Holbah's (2022) concerns about the limitations of automated language assessment systems, such as their inability to foster deep cognitive engagement, parallel the challenges of AI in ESP writing. Just as online assessments may prioritize efficiency over meaningful learning, AI-generated feedback risks reinforcing surface-level corrections without cultivating critical thinking or intercultural reflection (Lee, 2024; Aleksandrovna, 2024). However, AI could be strategically leveraged to scaffold intercultural learning by incorporating culturally annotated feedback models or comparative text analyses. For example, AI tools might highlight differences in rhetorical structures (e.g., direct vs. indirect communication styles) across cultures, prompting students to critically evaluate their writing choices. Such an approach would align with Sharma's (2020) call for a balanced curriculum that integrates linguistic skills with intercultural competence, preparing students for real-world professional interactions.

The challenges EFL teachers face in selecting culturally appropriate materials (Sharma, 2020; Al Houssawi, 2010) further underscore the need for a hybrid pedagogical model where AI complements—rather than replaces—human instruction. While AI can efficiently handle repetitive feedback tasks (e.g., grammar checks), teachers play an irreplaceable role in contextualizing language use within cultural

frameworks. For instance, ESP instructors could use AI-generated feedback as a baseline before engaging students in peer discussions or case studies analyzing how professional documents (e.g., reports, proposals) vary across cultures. This method would mitigate the risk of over-reliance on AI while preserving opportunities for critical thinking and intercultural dialogue.

Additionally, the rapid adoption of AI in Uzbek education (Aleksandrovna, 2024) mirrors global trends but highlights a critical gap: without localized, culturally responsive AI training data, feedback systems may inadvertently impose dominant linguistic norms, marginalizing non-Western communication styles. Future research should explore how AI can be tailored to reflect regional professional conventions (e.g., business communication in Central Asia vs. Europe), ensuring that ESP instruction respects local identities while preparing students for global engagement.

The study by Malik and Kalim (2025) reinforces the global trend of AI-assisted feedback enhancing ESP writing proficiency, particularly in overcoming challenges like large class sizes and limited personalized feedback in Pakistani classrooms. Their findings align with previous research (Guo et al., 2024; Jamshed et al., 2024) on AI's effectiveness in improving grammatical accuracy and learner autonomy. However, the study also highlights a critical cultural nuance: while students appreciated AI's immediacy, many still valued human feedback for its depth and contextual richness, echoing concerns from Uzbek (Aleksandrovna, 2024) and Korean (Lee, 2024) contexts about AI's limitations in fostering critical thinking. This suggests that AI's role in ESP instruction must be culturally adaptive—balancing efficiency with the socio-pedagogical expectations of learners, particularly in regions like Pakistan where teacher-student interaction remains highly valued (Nawab, 2012).

Malik and Kalim's (2025) findings resonate with Sharma and Holbah's (2022) observations on automated systems: while AI feedback bots improve efficiency and engagement, they risk fostering dependency if not integrated strategically. The study's alignment with Vygotsky's ZPD theory underscores AI's potential as a "digital scaffold," but also calls for hybrid models where AI supports—not supplants—instructor-led critical thinking exercises. Future research should explore how AI can be tailored to address regional educational policies (e.g., Pakistan's 2018 tech-integration mandate) while mitigating risks like superficial learning, a concern also raised in Uzbek and Korean studies. This cross-cultural perspective emphasizes the need for localized AI frameworks that harmonize technological innovation with pedagogical and cultural specificity.

The Pakistani study's quantitative success (significant post-test improvements, *p* < 0.0001) mirrors global evidence of AI's efficacy in writing instruction but adds a crucial dimension: the interplay between technology and cultural pedagogy. For instance, while AI tools like ChatGPT excel in individualizing feedback (Qazi et al., 2025), Malik and Kalim's qualitative data reveal that students in teacher-centric educational systems may resist full automation, preferring blended approaches. This complements Aleksandrovna's (2024) findings on Uzbek students' mixed perceptions, suggesting that AI integration must be context sensitive. Additionally, the study's linkage to Pakistan's national education policy highlights AI's role in advancing governmental goals for learner autonomy—a template

other developing nations could adapt.

However, the persistent gaps in AI's ability to nurture higher-order skills (Lee, 2024; Etaat, 2024) call for pedagogical innovations. For example, ESP instructors could pair AI-generated feedback with collaborative peer reviews or case-based tasks that require cultural and critical reflection (Sharma, 2020), ensuring AI complements human mentorship. Future research should also investigate how AI can be trained on localized corpora to address region-specific linguistic and professional norms, bridging the gap between global scalability and cultural relevance in ESP instruction.

This study investigates the effects of AI-assisted feedback on Uzbek ESP students' writing proficiency, cognitive engagement, and self-regulation. By analyzing feedback from AI tools like ChatGPT alongside traditional teacher evaluations, the aim is to:

-Measure improvements in grammatical accuracy, lexical diversity, and technical writing skills (Jamshed et al., 2024; Etaat, 2024).

-Assess the impact on higher-order skills (e.g., critical thinking, creativity) (Lee, 2024).

-Propose a balanced pedagogical framework integrating AI with instructor-led interventions to preserve independent thinking (Aleksandrovna, 2024).

This research fills a critical gap by providing localized data for Uzbekistan, where AI dependency in academia is rising unchecked. The findings will guide ESP instructors in leveraging AI effectively while fostering essential cognitive and professional communication skills.

2. Materials and Methods

This qualitative study investigates the growing reliance on AI tools (e.g., Grammarly, ChatGPT) among Uzbek students in academic writing and its implications for independent thinking and skill development. The study employs online surveys to gather insights from English major students at Fergana State University, Uzbekistan, where AI dependency has raised significant concerns among educators about diminishing critical writing abilities.

2.1 Participants and Sampling

The study involves a purposive sample of 42 students majoring either in English philology or English language and literature courses at Fergana State University, Uzbekistan. Participants are selected based on their experience in relation to the theme. This purposive sampling technique ensures the inclusion of information-rich cases that can provide an in-depth understanding of the research problem.

The survey data consists of 42 respondents, with a significant gender imbalance: 93% (39) are female, while only 7% (3) are male as in Table 1. This skewed distribution suggests that the sample predominantly represents female perspectives.

Table 1: Gender and age group distribution analysis

		What is your gender?		
		female	male	Total
What is your age group?	16-18	3	0	3

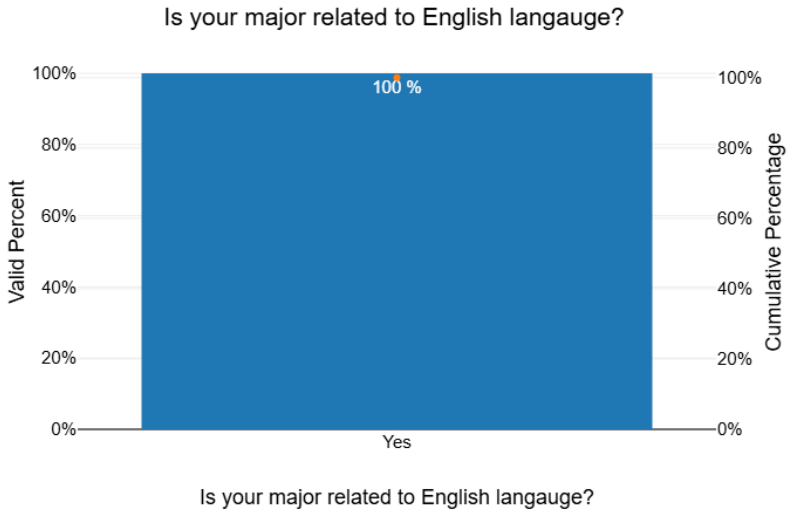
Table 1: Gender and age group distribution analysis

		What is your gender?		
		female	male	Total
	19-21	10	1	11
	22-25	22	0	22
	25+	4	2	6
	Total	39	3	42

In terms of age distribution, the majority (52.4%) of respondents fall within the 22-25 age range, followed by 26.2% in the 19-21 category. The youngest group (16-18) comprises only 7.1% of the sample, while those aged 25 and above make up 14.3%. Notably, all male respondents are either in the 19-21 or 25+ age brackets, while females are present across all groups. This suggests that younger and middle-aged females are more engaged in the survey, with limited male participation.

The data indicates that all 42 respondents (100%) have a major related to the English language, with no invalid responses as in Figure 1. This suggests a highly specialized sample where every participant is engaged in English studies, highlighting a strong relevance to language-focused research or training. The absence of variation eliminates the need for comparative analysis, as there are no respondents outside this academic field.

Figure 1: English major exclusivity



2.2 Ethical considerations

Ethical considerations were strictly observed in accordance with Fergana State University's research guidelines. Participation was voluntary and anonymous, with implied informed consent obtained through the completion of a Google Forms-based survey. Given the minimal risk posed by the study and the aggregated nature of the data, institutional review board (IRB) approval was deemed unnecessary. The research did not collect any identifiable personal data, and all responses were treated with strict confidentiality.

2.3 Research Questions

This study aims to investigate the pervasive reliance on AI-assisted writing tools among Uzbek university students and its consequences for academic skill development. The rapid integration of technologies like Grammarly and ChatGPT in Uzbekistan's educational sphere has raised concerns among educators about declining independent writing abilities, critical thinking, and long-term learning outcomes.

Within this context, the study seeks to address the following key research questions:

-How frequently do Uzbek EFL students use AI tools (e.g., Grammarly, ChatGPT) for academic writing tasks?

-What specific functions (e.g., grammar correction, idea generation, full-text rewriting) do they prioritize, and how do these choices reflect their writing challenges?

-To what extent do students passively accept AI-generated corrections without analyzing or understanding their mistakes?

-How does this reliance influence their ability to identify and rectify errors independently?

-Do students view AI tools as a scaffold for skill improvement or as a substitute for independent writing?

-What self-reported changes (e.g., vocabulary retention, sentence structuring, confidence) do they attribute to prolonged AI use?

-What specific difficulties (e.g., idea organization, grammar accuracy, coherence) emerge when students compose texts without AI assistance?

-How do these challenges correlate with their dependency levels?

-What strategies do students propose to balance AI utility with skill preservation?

How can educators redesign writing instruction (e.g., AI-free exercises, guided error analysis) to mitigate overreliance while leveraging AI's benefits?

These questions emerged from preliminary observations of Uzbekistan's educational landscape, where AI tools are widely adopted but unregulated. Teachers report declining originality in student work, while students increasingly struggle with unaided writing tasks—a trend this study interrogates through empirical data. By mapping usage patterns, dependency levels, and pedagogical gaps, the findings aim to inform policies that harmonize technological integration with foundational skill development.

2.4 Data Collection and Analysis

To explore the impact of AI-assisted feedback on ESP writing, this study employed a qualitative survey design. Data were collected using an anonymous online questionnaire distributed via Google Forms to 42 undergraduate students majoring in English philology or English language and literature at Fergana State University. Participants were selected using purposive sampling, ensuring that all respondents had active experience using AI tools such as ChatGPT or Grammarly in academic writing contexts. The questionnaire consisted of 15 items, including both closed-ended and open-ended

questions designed to probe AI usage frequency, perceived influence on writing skills, and attitudes toward writing autonomy.

The analysis followed a two-phase mixed-methods strategy. Quantitative data from closed-ended items (e.g., frequency of AI tool use, reliance levels) were processed using Microsoft Excel to calculate descriptive statistics such as percentages and frequencies. These results were organized into summary tables to reveal usage patterns and demographic distributions.

For open-ended responses, a systematic thematic analysis approach was applied, guided by Braun and Clarke's (2006) six-phase framework: familiarization with data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and writing up. To enhance analytical transparency and rigor, the following strategies were employed:

-Initial open coding was independently conducted by two researchers using NVivo software, allowing for systematic segmentation and labeling of recurring patterns such as "passive acceptance of AI corrections," "AI as a learning tool," and "diminished writing autonomy."

-To ensure inter-coder reliability, a third reviewer moderated discrepancies, resulting in an agreement rate of over 85%, which meets acceptable standards for qualitative reliability.

-Triangulation was applied by cross-referencing findings from quantitative trends (e.g., 64.3% uncritically accept AI corrections) with qualitative themes (e.g., overreliance, reduced error analysis). This allowed for validation and deeper interpretation of participant responses.

The analysis emphasized localized insights, such as AI's perceived role in bridging Uzbek English translation gaps and included student-suggested strategies for responsible AI use. Ethical protocols were strictly observed: data was anonymized, participation was voluntary, and no identifying information was collected.

3. Results and Discussion

The survey data reveals that most respondents actively use AI tools like Grammarly and ChatGPT for their writing assignments. A significant portion (45.24%) reported using these tools often, while 23.81% stated they always rely on them as in Table 2. This indicates that nearly 70% of respondents integrate AI assistance into their writing process regularly, suggesting a strong dependence on technology for language-related tasks.

Table 2: AI tool usage in writing assignments

How often do you use AI tools (e.g., Grammarly, ChatGPT) for your writing assignments?	Frequency	%	Valid %
Sometimes	12	28.57%	28.57%
Always	10	23.81%	23.81%
Rarely	1	2.38%	2.38%
Often	19	45.24%	45.24%
Total	42	100%	100%

Table 2: AI tool usage in writing assignments

How often do you use AI tools (e.g., Grammarly, ChatGPT) for your writing assignments?	Frequency	%	Valid %
Invalid	0	0%	
Total	42	100%	

On the other hand, 28.57% use AI tools only sometimes, while a very small fraction (2.38%) rarely rely on them. The absence of respondents who never use AI suggests a widespread recognition of its benefits in academic writing. The data highlights the growing role of AI in enhancing written communication, with most students leveraging it consistently.

The data indicates that the most common reason for using AI tools in writing is to get ideas and improve sentence structure, with 23.81% of respondents selecting this option exclusively (see Table 3). Additionally, a significant portion (30.95%) uses AI both for idea generation and improving sentence structure, as well as rewriting or generating full sentences and paragraphs. This suggests that many students rely on AI to refine their writing rather than just for correction.

Table 3: AI's role in academic writing

What is your main reason for using AI in writing?	Frequency	%	Valid %
To get ideas and improve sentence structure, To rewrite or generate full sentences and paragraphs	13	30.95%	30.95%
To get ideas and improve sentence structure, To rewrite or generate full sentences and paragraphs, To translate from Uzbek to English	1	2.38%	2.38%
I don't use AI for writing	1	2.38%	2.38%
To check grammar and spelling, To rewrite or generate full sentences and paragraphs	2	4.76%	4.76%
To rewrite or generate full sentences and paragraphs	9	21.43%	21.43%
To rewrite or generate full sentences and paragraphs, To translate from Uzbek to English	4	9.52%	9.52%
To get ideas and improve sentence structure	10	23.81%	23.81%
To translate from Uzbek to English	1	2.38%	2.38%
To check grammar and spelling, To get ideas and improve sentence structure	1	2.38%	2.38%
Total	42	100%	100%
Invalid	0	0%	
Total	42	100%	

Rewriting or generating full sentences and paragraphs alone is the primary reason for 21.43% of respondents, while 9.52% also use AI for translation from Uzbek to English. A smaller group (4.76%) combines grammar checking with rewriting assistance, and only 2.38% of respondents reported not using AI for writing at all. These findings highlight AI's role not just as a grammar-checking tool but as a

comprehensive writing assistant, particularly for structuring content and language enhancement.

The data reveals that many respondents (54.76%) usually accept AI-generated corrections without verifying them, while an additional 9.52% always accept AI suggestions without analyzing them as in Table 4. This suggests that nearly two-thirds of respondents (64.28%) rely on AI passively, potentially limiting their learning from mistakes.

Table 4: AI reliance in writing corrections

How much do you rely on AI-generated corrections without analyzing your mistakes?	Frequency	%	Valid %
I only use AI for small grammar checks	2	4.76%	4.76%
I usually accept them without checking	23	54.76%	54.76%
I check and understand most corrections	12	28.57%	28.57%
I always accept AI suggestions without thinking	4	9.52%	9.52%
I rarely use AI tools	1	2.38%	2.38%
Total	42	100%	100%
Invalid	0	0%	
Total	42	100%	

On the other hand, 28.57% check and understand most corrections, indicating a more active engagement with AI feedback. A small fraction (4.76%) uses AI only for minor grammar checks, while 2.38% rarely use AI tools at all. These findings highlight a divide between those who leverage AI as a learning tool and those who rely on it uncritically, raising concerns about overdependence on technology for writing accuracy.

The data reveals that half of the respondents (50%) feel that AI tools make writing easier but do not contribute to skill improvement as illustrated in Table 5. Additionally, 23.81% believe that AI reduces their ability to write independently, indicating concerns about overreliance on technology. Together, these responses suggest that nearly three-quarters of respondents (73.81%) see AI as a convenience rather than a learning tool, potentially impacting their long-term writing development.

Table 5: AI's influence on writing skills

How do you feel AI tools affect your ability to write independently?	Frequency	%	Valid %
They make me depend too much on AI and reduce my skills	10	23.81%	23.81%
They make writing easier but don't help me improve	21	50%	50%
They don't have much effect on my writing skills	4	9.52%	9.52%
They help me learn and improve my writing skills	6	14.29%	14.29%
I don't use AI for writing	1	2.38%	2.38%
Total	42	100%	100%
Invalid	0	0%	
Total	42	100%	

On the other hand, 14.29% of respondents feel that AI tools help them learn and improve their writing skills, demonstrating that some students actively engage with AI for educational purposes. A smaller portion (9.52%) believe AI has little impact on their writing skills, while only 2.38% do not use AI for writing at all. These results highlight the need for a balanced approach, leveraging AI for support while maintaining active learning to enhance independent writing skills.

The data indicates that the most common challenge faced by respondents when writing without AI is organizing ideas, with 50% of participants struggling in this area as in Table 6. This suggests that structuring thoughts and creating coherent writing is a significant difficulty for many, highlighting a potential need for improved writing strategies and planning techniques.

Table 6: Writing challenges without AI

What challenges do you face when writing without AI assistance?	Frequency	%	Valid %
I struggle with grammar and sentence structure	5	11.9%	11.9%
I find it difficult to organize my ideas	21	50%	50%
I lack confidence in my writing	11	26.19%	26.19%
I don't face any major difficulties	5	11.9%	11.9%
Total	42	100%	100%
Invalid	0	0%	
Total	42	100%	

Additionally, 26.19% of respondents lack confidence in their writing, which may indicate a reliance on AI tools for reassurance. 11.9% struggle with grammar and sentence structure, while an equal percentage (11.9%) report no major difficulties when writing without AI. These findings suggest that while some students have strong writing abilities, many still depend on AI to help with structure, clarity, and confidence in their work.

The responses indicate that AI tools provide significant assistance in various aspects of writing, particularly in grammar correction, sentence rephrasing, and idea generation. Several respondents highlighted AI's role in fixing grammar mistakes, such as verb tense errors, ensuring that their writing is more accurate (see Figure 2). Additionally, AI helps with natural sentence restructuring, especially for those who think in Uzbek and translate directly into English. This suggests that AI plays a crucial role in bridging linguistic gaps and improving fluency.

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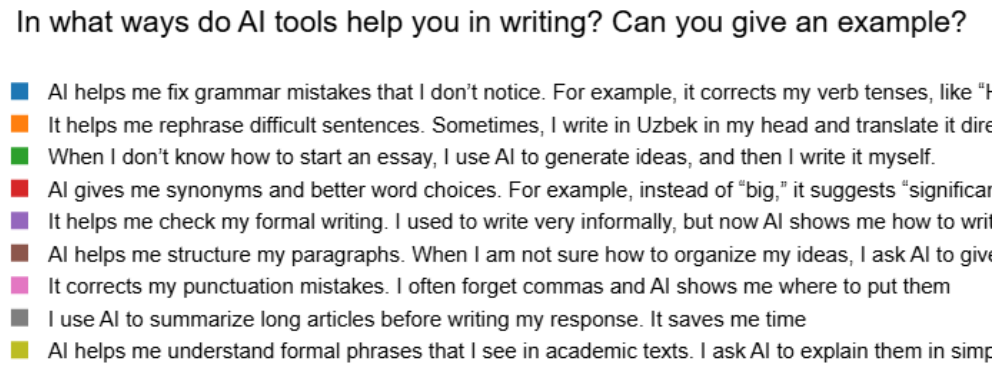
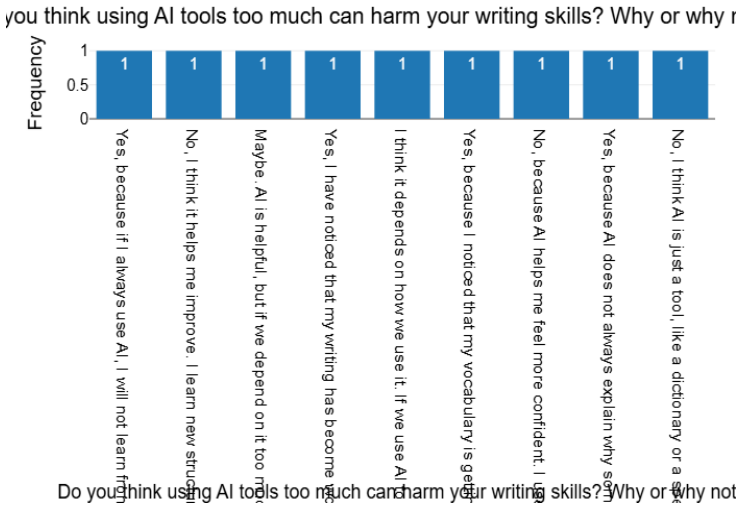
Figure 2: AI's multifaceted writing support



Beyond grammar, AI also aids in word choice, writing style, and organization. Respondents mentioned using AI for synonyms and formal writing corrections, allowing them to adopt a more academic tone. AI-generated outlines help students structure their paragraphs more effectively, while punctuation corrections prevent common mistakes. Additionally, AI is useful for summarizing long texts and simplifying complex academic phrases, making learning more accessible. These responses reflect AI's growing role as a comprehensive writing assistant, not just for correction but also for skill development.

The responses highlight a divided perspective on whether excessive AI use harms writing skills. Some respondents firmly believe that AI negatively affects learning, as it reduces engagement with mistakes and discourages active vocabulary retention as in Figure 3. Several noted that they accept AI corrections without understanding them, which can lead to weaker grammar skills and over-reliance on technology. Others observed a decline in their vocabulary because they rely on AI for word suggestions instead of recalling words independently.

Figure 3: AI's double-edged effect on writing

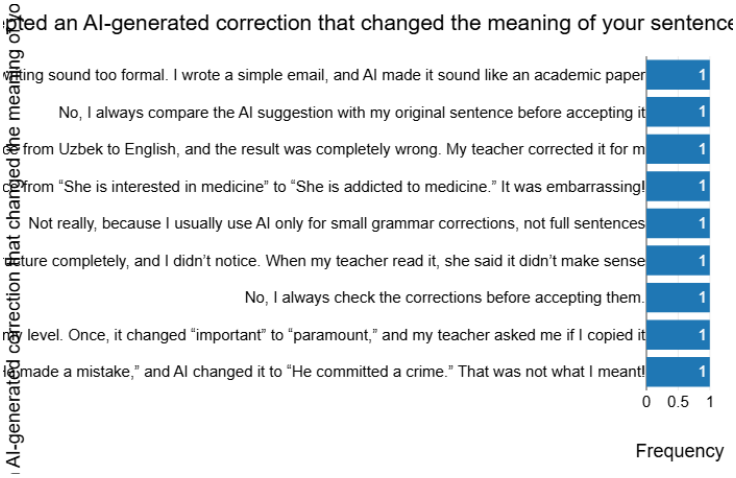


Conversely, other respondents view AI as a helpful learning tool that enhances their writing by introducing new structures and vocabulary. Some feel that AI builds confidence by providing a safety net, making writing less intimidating. A few take a balanced approach, arguing that AI is only harmful if misused—if learners use it to understand corrections and improve, it is beneficial; if they merely copy

AI-generated content, it can weaken their skills. These insights suggest that the effect of AI on writing depends largely on how students engage with it, whether as a learning aid or a crutch.

The responses reveal that many students have experienced misleading or inappropriate AI-generated corrections that altered the intended meaning of their sentences. Several respondents shared specific instances where AI changed simple phrases into overly formal, incorrect, or even misleading statements as in Figure 4. Examples include changing "He made a mistake" to "He committed a crime" and "She is interested in medicine" to "She is addicted to medicine." Such errors highlight the risks of blindly accepting AI suggestions without reviewing them carefully. Additionally, some noted that AI's word choices were too advanced, making their writing seem unnatural or out of place in academic settings.

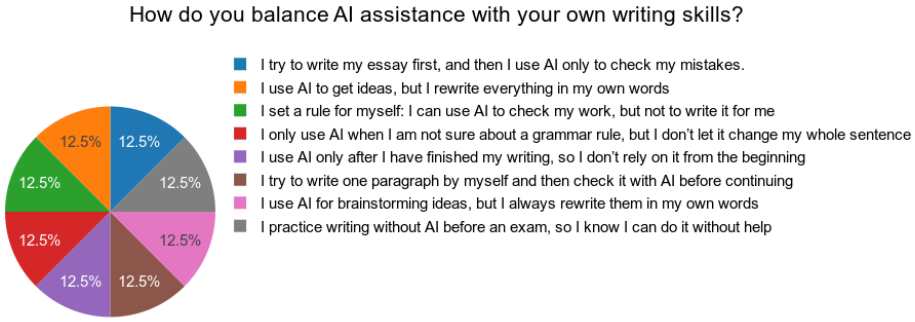
Figure 4: The pitfalls of AI corrections



However, some respondents exercise caution when using AI, stating that they always check corrections before accepting them. Others mentioned that they limit AI use to small grammar fixes rather than full-sentence rewrites, reducing the likelihood of significant misinterpretations. These responses emphasize the importance of critical thinking and review when using AI tools to ensure that corrections align with the writer's intended meaning. While AI can be a valuable assistant, it requires active engagement from users to avoid unintended distortions in their writing.

The responses indicate that most students aim to maintain a balance between AI assistance and their own writing skills by using AI selectively rather than relying on it entirely. Many respondents prefer to write their work first and use AI only for corrections, ensuring that their original ideas and structure remain intact as in Figure 5. Others use AI as a brainstorming tool, leveraging it for idea generation but rewriting content in their own words to maintain authenticity. A common strategy mentioned is checking work with AI only after completing a draft, which prevents overdependence on AI from the start.

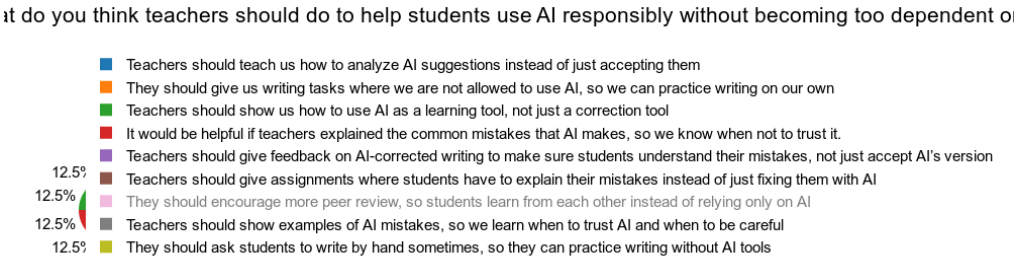
Figure 5: Balancing AI and writing skills



Additionally, some students impose self-regulation strategies, such as setting personal rules to limit AI use to grammar checks or practicing writing independently before exams. These approaches suggest a conscious effort to develop writing skills without over-relying on AI-generated assistance. Overall, the data highlights a strong awareness of the need for balance, showing that students recognize both the benefits and potential risks of AI in writing. By using AI responsibly, they ensure that their writing remains a product of their own critical thinking and learning process.

Students recognize that teachers play a crucial role in ensuring AI is used as a learning aid rather than a crutch. Many respondents suggest that educators should teach students how to analyze AI-generated corrections instead of blindly accepting them as in Figure 6. This includes showing common AI mistakes and providing feedback on AI-assisted writing to ensure students understand their errors. Some believe that teachers should explicitly demonstrate how AI can be a tool for learning rather than just correction, helping students build independent writing skills while benefiting from AI assistance.

Figure 6: Teaching responsible AI use



Others propose AI-free writing tasks to encourage independent writing practice, including handwritten assignments to reduce reliance on digital tools. Strategies such as peer review, mistake analysis assignments, and critical evaluation of AI suggestions are also recommended to promote deeper engagement with the writing process. These responses highlight a strong awareness that while AI is helpful, it should be integrated into education in a way that strengthens, rather than weakens, students' writing abilities.

4. Discussion

The findings of this study reveal a significant reliance on AI tools like Grammarly and ChatGPT among Uzbek ESP students, with nearly 70% of respondents using these tools regularly for academic writing.

This aligns with the literature, which highlights AI's role in enhancing writing proficiency through immediate feedback and grammatical accuracy (Jamshed et al., 2024; Qazi et al., 2025). However, the passive acceptance of AI-generated corrections by 64.28% of students raises concerns about over-reliance, echoing Lee's (2024) findings that AI may hinder critical thinking and self-directed learning. The data also corroborates Aleksandrovna's (2024) observations about the dual role of AI as both a facilitator and a potential crutch, particularly in contexts where students struggle with independent writing tasks.

The study further underscores AI's multifaceted role in academic writing, extending beyond grammar correction to include idea generation, sentence restructuring, and translation. This supports Guo et al.'s (2024) argument that AI tools like Eva enhance peer feedback quality and writing outcomes. However, the prevalence of students using AI for full-text rewriting (21.43%) and translation (9.52%) suggests a dependency that may undermine original content creation, as noted by Etaat (2024). The challenges reported by students when writing without AI—such as organizing ideas (50%) and lacking confidence (26.19%)—highlight gaps in foundational writing skills, reinforcing the need for balanced pedagogical strategies that integrate AI without compromising independent learning.

The mixed perceptions of AI's impact on writing skills further illustrate its double-edged nature. While 50% of respondents viewed AI as a convenience tool with no skill improvement, 14.29% acknowledged its role in learning, aligning with Kabilovna and Aleksandrovna's (2024) findings on AI's positive influence on self-esteem. The reported instances of misleading AI corrections (e.g., altering sentence meaning) emphasize the importance of critical engagement with AI tools, as cautioned by Darvishi et al. (2024). These results suggest that while AI can scaffold learning, its effectiveness depends on how students and educators navigate its use.

To mitigate risks, students proposed strategies such as selective AI use and post-draft corrections, reflecting a conscious effort to balance technology with skill development. These insights resonate with the literature advocating for structured instructor-led interventions to complement AI feedback (Aleksandrovna, 2024; Lee, 2024). The call for AI-free writing tasks and guided error analysis aligns with pedagogical recommendations to foster critical thinking and autonomy, ensuring AI serves as a learning aid rather than a replacement for human cognition.

Conclusion

This study provides valuable insights into the impact of AI-assisted feedback on Uzbek ESP students, highlighting its benefits in enhancing writing efficiency and grammatical accuracy while cautioning against over-reliance. The findings align with global research on AI's transformative potential in education but also underscore localized challenges, such as diminished critical thinking and confidence in unaided writing. By proposing a balanced framework that integrates AI with traditional teaching methods, this study addresses the need for pedagogical strategies that leverage technology without compromising foundational skills.

The research fills a critical gap in the Uzbek context, where AI adoption is rapidly increasing but

lacks empirical scrutiny. Future studies could explore longitudinal effects of AI use on writing proficiency and cognitive skills, as well as the role of teacher training in optimizing AI integration. For now, educators are urged to adopt a hybrid approach—combining AI tools with activities that promote originality, critical analysis, and self-regulation—to ensure students develop both technical and higher-order thinking skills essential for professional communication. This study thus contributes to the broader discourse on AI in education, offering evidence-based recommendations for fostering inclusive and effective learning environments.

Research limitations

The study has several limitations that should be acknowledged. First, the sample size of 42 participants, while sufficient for qualitative insights, is relatively small and restricts the generalizability of the findings to broader populations. Additionally, the sample exhibited a significant gender imbalance, with 93% female respondents, which may skew perspectives and limit the applicability of the results to male students or more diverse demographic groups. These limitations highlight the need for caution when interpreting the findings and suggest that future research should aim for larger, more balanced samples to validate and extend the current results.

The study’s focus on Uzbek ESP students, while valuable for local context, may limit its broader relevance. The findings could benefit from comparison with cross-cultural studies to determine whether similar patterns of AI dependency and skill development occur in other educational settings. Addressing these limitations in future research would strengthen the validity and applicability of the conclusions.

Pedagogical implications

To address the challenges identified in this study, educators should adopt a hybrid pedagogical approach that strategically combines AI tools with traditional teaching methods. One key strategy involves guided AI use, where teachers demonstrate how to critically evaluate AI-generated feedback. The first step is to encourage students to think about why they're getting corrections, not just accept them. This way, they'll learn more and won't rely too much on automatic suggestions. This approach aligns with findings from Lee (2024) and Aleksandrovna (2024), who emphasize the importance of maintaining student agency in AI-assisted learning environments.

Another essential strategy is the incorporation of AI-free writing exercises, such as handwritten assignments or in-class writing tasks. These activities serve as valuable counterbalances to digital dependency, helping students strengthen their independent writing skills and build confidence in their unaided abilities. Research by Etaat (2024) supports this approach, noting that periodic disengagement from AI tools can mitigate the risk of skill atrophy in critical areas like idea organization and original content creation.

Peer review and reflection activities should complement AI feedback to create a more holistic learning experience. In combining AI-generated suggestions with structured peer review sessions,

teachers can promote collaborative learning while encouraging students to critically consider different perspectives on their written work. This method not only enhances writing quality but also develops higher-order cognitive skills, addressing one of the key limitations identified in AI-assisted learning environments (Darvishi et al., 2024).

Given AI's current limitations in addressing intercultural competence (Sharma, 2020), instructors must supplement AI tools with explicit discussions about cultural nuances in professional communication. This is particularly relevant for ESP contexts, where students need to navigate diverse rhetorical conventions and audience expectations. Teachers might incorporate comparative analyses of texts from different cultural traditions or case studies examining how professional documents vary across linguistic contexts. By applying these strategies, teachers can capitalize on the benefits of artificial intelligence, such as increased efficiency and grammatical accuracy, while mitigating risks, such as decreased critical thinking and over-reliance. This balanced approach ensures that students develop both the technical proficiency and cognitive flexibility necessary for effective professional communication.

This study contributes meaningful insights to the ongoing discourse about AI in education, particularly in under-researched contexts like Uzbekistan. The findings highlight both the transformative potential and inherent limitations of AI-assisted writing instruction, offering actionable recommendations for educators navigating this evolving landscape. Future research should explore the longitudinal effects of AI integration on writing development and investigate how teacher training programs can best prepare educators to implement these hybrid pedagogical models effectively. Such studies would further refine our understanding of optimal AI integration strategies in diverse educational contexts.

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Conflicts ofInterest

The author declares no conflict of interest.

Author Contributions

The author was responsible for the conceptualization, methodology, data collection, analysis, and writing of this study.

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The authors confirm that this work is original, free from plagiarism, and has not involved the use of AI-generated content.

References

Aleksandrovna, S. A. (2024). A Comparative Study of the Impact of Artificial Intelligence on learning Outcomes. *Shokh Library*, 274-284. https://www.wosjournals.com/index.php/shokh/article/view/523/804

Darvishi, A., Khosravi, H., Sadiq, S., Gašević, D., & Siemens, G. (2024). Impact of AI assistance on student agency. *Computers & Education, 210*, 104967. https://doi.org/10.1016/j.compedu.2023.104967.

Etaat, F. (2024). The Effect of AI-Based Applications on EFL Writing Skill Development: An Inquiry into Integration of AI into Language Learning (Master's thesis, UiT Norges arktiske universitet).

Guo, K., Pan, M., Li, Y., & Lai, C. (2024). Effects of an AI-supported approach to peer feedback on university EFL students' feedback quality and writing ability. *The Internet and Higher Education, 63*, 100962.

Haerazi, H., Utama, I., & Hidayatullah, H. (2020). Mobile applications to improve English writing skills viewed from critical thinking ability for pre-service teachers. *International Journal of Interactive Mobile Technologies (IJIM), 14*(7), 58-72. https://doi.org/10.3991/ijim.v14i07.11900

Jamshed, M., Manjur Ahmed, A. S. M., Sarfaraj, M., & Warda, W. U. (2024). The Impact of ChatGPT on English Language Learners' Writing Skills: An Assessment of AI Feedback on Mobile. *International Journal of Interactive Mobile Technologies, 18*(19), 18-36. https://doi.org/10.3991/ijim.v18i19.50361

Kabilovna, A. N., & Aleksandrovna, S. A. (2024). The positive impact of ai on self-esteem among efl learners: case studies from Fergana State University and Tuit Fergana branch University. *Innovation in the Modern Education System, 5*(45), 33-48.

Lee, G. (2024). AI-based writing feedback in ESP: Leveraging ChatGPT for writing business cover letters among Korean university students. *Proceedings of the International CALL Research Conference*, *2024*, 131–136. https://doi.org/10.29140/9780648184485-20

Malik, S., & Kalim, S. (2025). AI-Assisted Feedback Bots in Pakistani ESP Classrooms: Improving Writing Proficiency and Learner Autonomy. *Al-Qantara, 11*(1), 140-161. https://alqantarajournal.com/index.php/Journal/article/view/667/439

Pingmuang, P. & Koraneekij, P. (2022). Mobile-assisted language learning using task-based approach and gamification for enhancing writing skills in EFL students. *The Electronic Journal of E-Learning, 20*(5), 623-638. https://doi.org/10.34190/ejel.20.5.2339

Qazi, M. H., Munir, T., Zaigham, M. S., & Mughal, U. A. (2025). Ihe impact of ai-assisted self-regulated learning, specifically ChatGPT, on students ‘engagement and writing skill enhancement. *Journal of Applied Linguistics and TESOL (JALT), 8*(1), 393-415. https://jalt.com.pk/index.php/jalt/article/view/327/266

Sharma, V. (2020). Developing Communication Skills through Raising Intercultural Competence in EFL Classroom. *ASR Chiang Mai University Journal of Social Sciences and Humanities, 7* (01).

https://doi.org/10.12982/CMUJASR.2020.005

Sharma, V. K., & Holbah, W. A. (2022). Online Language Assessment the Exception, Not the Rule: For Inclusive Language Learning. *Arab World English Journal (AWEJ) Special Issue on CALL (8)*, 299-313. https://dx.doi.org/10.24093/awej/call8.20

Sun, M. & Li, Y. (2020). Eco-environment construction of English teaching using artificial intelligence under big data environment. *IEEE Access, 8*, 193955-193965. https://doi.org/10.1109/access.2020.3033068

Zhang, L. (2022). Improved collaborative filtering automatic assessment system for teaching English writing in college. *Advances in Multimedia*, 1-9. https://doi.org/10.1155/2022/7092811