

**ARTIFICIAL INTELLIGENCE USE AND EFL LEARNERS’
DEVELOPMENT: EXPLORING THE RELATIONSHIP BETWEEN AI
DEPENDENCE, CRITICAL THINKING, ACADEMIC WRITING, AND ENGLISH
LANGUAGE DEVELOPMENT**

Author: Gulnoza Mamanazarova

Affiliation: Law Lyceum under Tashkent State University of Law, Uzbekistan

Abstract: *The rapid development of generative artificial intelligence (AI) has significantly transformed English as a Foreign Language (EFL) learning. AI-powered tools such as ChatGPT, Grammarly, QuillBot, and other language-learning applications provide learners with immediate feedback, linguistic support, vocabulary assistance, and opportunities for independent learning. However, the increasing availability of these technologies has also raised concerns regarding learners’ dependence on AI and its potential consequences for critical thinking, academic writing, learner autonomy, and long-term English language development. This conceptual article explores the relationship between AI use and EFL learners’ cognitive and linguistic development, with particular attention to AI dependence as a potential risk factor. Drawing on recent empirical studies and theoretical perspectives, the article argues that AI should not be viewed as either an inherently beneficial or harmful educational technology. Rather, its impact depends on the intensity, purpose, and manner of use. While appropriately guided AI use can support writing quality, linguistic accuracy, vocabulary development, and learning motivation, excessive reliance may reduce learners’ engagement in independent reasoning, idea generation, problem-solving, and language production. The article proposes an integrated conceptual framework connecting AI use, AI dependence, critical thinking, academic writing, and English language development. It further highlights the importance of AI literacy, learner autonomy, and pedagogically structured human–AI collaboration. The article concludes that longitudinal research is needed to determine whether frequent AI use produces sustainable language development or gradually increases learners’ cognitive and linguistic dependence on artificial intelligence.*

Keywords: *artificial intelligence; AI dependence; EFL learners; critical thinking; academic writing; English language development; learner autonomy; generative AI*

1. INTRODUCTION

Artificial intelligence has become an increasingly visible component of contemporary education. The emergence of generative AI tools has particularly affected language learning and academic writing because these technologies can generate texts, correct grammatical errors, suggest vocabulary, provide explanations, translate sentences, and offer immediate

feedback. For EFL learners, such functions can be highly attractive because they provide linguistic assistance without requiring immediate teacher intervention.

The integration of AI into EFL education, however, presents a complex pedagogical issue. On the one hand, recent research demonstrates that AI-supported learning can improve aspects of learners’ writing performance. A 2026 meta-analysis of studies on ChatGPT and EFL writing reported a significant overall positive effect on writing outcomes, with particularly notable benefits when ChatGPT was integrated into instructional practices. Similarly, recent intervention research suggests that structured AI-supported approaches can enhance EFL learners’ writing performance and critical engagement.

On the other hand, increasing AI accessibility creates an important question: Does improved performance with AI necessarily indicate improved language competence without AI?

This distinction is particularly important in EFL education. A learner may produce grammatically accurate and sophisticated English with the assistance of an AI tool while possessing limited ability to independently formulate arguments, select vocabulary, organize ideas, or revise a text. Thus, AI-assisted performance and actual language development should not automatically be treated as equivalent.

Recent evidence from Uzbekistan makes this issue particularly relevant. A 2026 case study involving 351 EFL students at Fergana State University investigated AI use in academic writing and found improvements in grammatical accuracy and lexical sophistication, while also identifying reductions in some indicators of argumentative reasoning and originality. These findings illustrate the central tension underlying the present discussion: AI may simultaneously support linguistic performance and create risks for independent cognitive development.

Therefore, the purpose of this article is to examine the relationship between AI use, AI dependence, critical thinking, academic writing, and English language development among EFL learners.

2. AI in EFL Learning

AI technologies provide EFL learners with access to forms of support that were previously limited to teachers, textbooks, or language-learning platforms. Learners can ask AI systems to explain grammar, generate examples, provide vocabulary, correct writing, simulate conversations, and give feedback.

Such applications may contribute to several dimensions of language learning.

First, AI can provide immediate linguistic feedback. Instead of waiting for a teacher to correct a writing task, students can receive suggestions within seconds.

Second, AI can support vocabulary development by providing synonyms, collocations, contextual examples, and explanations.

Third, AI can support writing development by helping learners brainstorm ideas, organize paragraphs, identify grammatical problems, and revise drafts.

Fourth, conversational AI can provide additional opportunities for English communication, particularly for learners who have limited access to native or proficient English speakers.

However, the pedagogical value of AI depends greatly on how learners use it.

If a student asks, “Write my essay for me,” the AI performs the central cognitive and linguistic task.

If the same student asks, “I have written my introduction. Identify grammatical problems and explain why they are problems, but do not rewrite the paragraph,” the learner remains actively involved in the learning process.

Therefore, AI assistance and AI substitution should be distinguished.

3. From AI Use to AI Dependence

One of the most important concepts for future EFL research is AI dependence.

AI use does not necessarily mean AI dependence. A learner can use ChatGPT occasionally for brainstorming or checking grammar without becoming dependent on it. Dependence emerges when learners increasingly feel unable or unwilling to complete academic or linguistic tasks independently.

Recent research specifically distinguishes between functional and cognitive dependency on ChatGPT among EFL students. Other research has reported concerns about excessive dependence, including possible effects on critical thinking, creativity, and academic integrity.

For the purposes of EFL education, AI dependence can be conceptualized through several dimensions:

1. Functional dependence – the learner frequently requires AI to complete academic tasks.
2. Cognitive dependence – the learner relies on AI to generate ideas or make decisions.
3. Linguistic dependence – the learner relies on AI to formulate English rather than developing independent language production.
4. Emotional dependence – the learner experiences anxiety when completing tasks without AI assistance.
5. Decision-making dependence – the learner accepts AI-generated answers without independently evaluating them.

This distinction is particularly important for a longitudinal PhD study because dependence may not become visible after a single lesson or assignment. Its potential effects may emerge gradually over months or years.

4. AI Dependence and Critical Thinking

Critical thinking represents one of the most important cognitive dimensions potentially affected by excessive AI use.

EFL learners are expected to analyse information, compare perspectives, evaluate evidence, formulate arguments, identify assumptions, and reach justified conclusions. These processes require cognitive effort.

When AI is used as a scaffold, it may stimulate critical thinking. For example, students can ask AI to provide opposing arguments and then evaluate them.

However, when AI becomes a substitute for thinking, the situation may be different.

A learner who consistently asks AI to generate ideas, choose arguments, explain concepts, solve problems, summarize readings, and formulate conclusions may gradually engage less frequently in independent cognitive processing.

A recent systematic review of studies on GenAI and critical thinking in EFL education concluded that AI has a dual character: it can promote critical thinking when thoughtfully integrated, but it can also hinder critical thinking when learners rely on it without sufficient evaluation.

Consequently, the key variable may not be frequency of AI use alone, but the nature of that use.

5. AI and Academic Writing

Academic writing is one of the areas most directly influenced by generative AI.

AI can help EFL learners improve grammatical accuracy, vocabulary, sentence structure, coherence, organization, academic style, and revision skills.

The recent Fergana State University study is particularly relevant to the Uzbek context. It reported substantial improvements in grammatical accuracy and lexical sophistication among EFL students using AI-assisted writing, while simultaneously identifying concerns about originality and independent argumentative reasoning.

This creates an important distinction between writing performance and writing development.

Writing performance refers to the quality of a particular text.

Writing development refers to the learner's ability to produce increasingly effective texts independently over time.

If a learner's essay improves because an AI system rewrites most of the text, the resulting improvement may represent AI-assisted performance rather than internalized writing competence.

Therefore, future research should compare AI-assisted writing performance with independent writing performance. This distinction is especially important for longitudinal research.

6. AI and English Language Development

The ultimate purpose of EFL education is not simply to produce correct texts but to develop learners' ability to use English independently.

English language development includes vocabulary growth, grammatical competence, reading comprehension, listening comprehension, speaking fluency, writing proficiency, and communicative competence.

AI can support each of these dimensions. However, excessive dependence may create what can be called a performance–competence gap.

For example, Student A uses AI to generate vocabulary, memorizes and practices it, and later uses it independently. Student B uses AI to generate vocabulary, copies it, and uses AI again whenever vocabulary is required.

Both students may initially produce sophisticated English. However, only the first learner necessarily demonstrates internalized language development.

This distinction should become an important focus of longitudinal research.

7. Learner Autonomy and AI Literacy

The potential negative effects of AI dependence do not mean that AI should be removed from language education.

Instead, learners need to develop AI literacy.

Recent research defines critical AI literacy in academic writing through learners' awareness of AI affordances and limitations, strategies for using AI, evaluation of AI-generated outputs, and ethical negotiation of AI use.

Therefore, effective EFL instruction should teach students not only how to use AI, but also when to use it, when not to use it, how to verify information, how to evaluate AI-generated arguments, how to detect inaccurate information, how to maintain their own voice, and how to use AI without replacing independent thinking.

This approach transforms AI from a substitute into a learning scaffold.

8. Proposed Conceptual Framework

Based on the reviewed literature, this article proposes the following conceptual relationship:

AI Use → AI Dependence → Critical Thinking

AI Use → Academic Writing

AI Use → English Language Development

AI Dependence → Academic Writing

AI Dependence → English Language Development

These relationships may produce different outcomes depending on AI literacy and learner autonomy.

The framework therefore assumes that AI does not have a single predetermined effect on EFL learners.

Its effects are likely to depend on frequency of use, purpose of use, level of dependence, learner proficiency, AI literacy, teacher guidance, type of task, and duration of exposure.

This framework can provide a strong theoretical foundation for a longitudinal study.

9. Research Gap

Despite the rapidly expanding literature on AI and language learning, several gaps remain.

First, many existing studies focus on short-term interventions. Recent research has investigated AI-supported writing over periods such as 10–14 weeks.

Second, much of the existing research focuses on university students, whereas less attention has been given to students at the academic lyceum level.

Third, studies frequently examine either writing performance or critical thinking separately. Fewer studies integrate AI dependence, critical thinking, academic writing, and overall English development within one framework.

Fourth, relatively little longitudinal research investigates whether repeated AI use over an extended period produces sustainable language development or increasing dependence.

Finally, the Central Asian and Uzbek educational context remains underrepresented in the international literature, although recent research from Fergana State University demonstrates that this context is particularly relevant to the issue.

These gaps provide a strong justification for the proposed PhD research.

10. Implications for Future Research

Future research should investigate AI use longitudinally rather than relying exclusively on cross-sectional surveys.

A particularly useful design would follow EFL learners for two academic years and measure changes in AI-use frequency, AI-dependence level, critical thinking, academic writing, vocabulary development, grammatical competence, communicative competence, and learner autonomy.

Both AI-assisted and independent tasks should be included.

For example, students could complete one writing task with AI assistance and another without AI assistance. The difference between the two performances could provide evidence of the extent to which AI assistance represents genuine learning or temporary performance enhancement.

This approach would allow researchers to investigate not simply whether AI improves students' performance, but whether students become better English users without AI.

11. Conclusion

Artificial intelligence represents both an opportunity and a challenge for EFL education. Current evidence suggests that AI tools can improve aspects of writing, linguistic accuracy, vocabulary, motivation, and learning support. At the same time, increasing dependence on AI may create risks for independent thinking, originality, learner autonomy, and sustainable language development.

The central issue is therefore not whether AI should be used in EFL education, but how it should be used and what happens when learners increasingly depend on it.

The proposed conceptual framework connects AI use, AI dependence, critical thinking, academic writing, and English language development. It emphasizes the importance of distinguishing AI-assisted performance from independent competence.

Longitudinal research is particularly necessary because the consequences of AI dependence may not become visible in short-term studies. A two-year investigation of EFL learners could provide valuable evidence regarding whether continuous AI use strengthens learners' English competence or gradually shifts cognitive and linguistic responsibility from the learner to the technology.

Such research would contribute not only to EFL methodology but also to the emerging field of AI-supported language education and AI literacy.

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