SCIENCE CONNECTS PEOPLE

INTERNATIONAL SCIENTIFIC JOURNAL OF

2026 / No. 1(2)

Contemporary Pedagogical and Philological Research

AI LITERACY AMONG UNIVERSITY EFL STUDENTS: PERCEPTIONS, PRACTICES AND CHALLENGES

Nasrillayeva Nilufar Akmal qizi

Student at Narpay foreign languages faculty

SamSIFL, Samarkand

Abstract. The rapid development of artificial intelligence has significantly transformed higher education and foreign language learning. In particular, the increasing use of generative artificial intelligence applications such as ChatGPT, Grammarly, Google Gemini, and other AI-powered educational platforms has created new opportunities for university students studying English as a Foreign Language (EFL). These technologies provide support for academic writing, vocabulary development, grammar correction, translation, reading comprehension, and independent learning. However, effective engagement with artificial intelligence requires more than the ability to operate digital applications. Students also need AI literacy, which involves understanding how AI systems function, evaluating AI-generated information, recognizing technological limitations, and using these tools responsibly and ethically. The present study examines AI literacy among university EFL students, focusing on their perceptions, everyday practices, and challenges associated with AI-assisted language learning. A qualitative literature-based research design is employed to synthesize relevant theoretical frameworks and empirical findings concerning AI literacy in higher education and foreign language education. Particular attention is given to students' familiarity with AI applications, purposes of use, critical evaluation skills, ethical awareness, and digital learning competencies. Recent empirical research by Hossain, Çelik, and Hiniz (2025), involving 427 Turkish university EFL students, revealed moderate AI familiarity and considerable reliance on AI tools for translation and grammatical proofreading. The findings also highlighted limited understanding of AI mechanisms and concerns regarding plagiarism and

academic integrity. Similarly, UNESCO's AI Competency Framework for Students emphasizes the importance of human-centered thinking, ethical awareness, and responsible interaction with AI technologies. The study argues that AI literacy should become an essential component of contemporary EFL education. It concludes that universities should provide systematic AI literacy instruction to help students move from simple technological use toward critical, informed, and responsible engagement with artificial intelligence.

Key words: artificial intelligence, AI literacy, EFL students, university education, ChatGPT, digital literacy, student perceptions, AI-assisted learning, academic integrity, critical thinking.

INTRODUCTION

'Artificial intelligence has become one of the most influential technological developments in contemporary education. Its rapid integration into universities has changed the ways students access information, complete academic assignments, communicate, and develop language skills. In foreign language education, AI-powered applications have created new opportunities for personalized learning, interactive communication, immediate feedback, and independent language practice.

For university students studying English as a Foreign Language, artificial intelligence can provide valuable assistance in overcoming linguistic and academic difficulties. Students can use AI applications to translate unfamiliar words, correct grammatical errors, improve academic vocabulary, summarize texts, generate examples, and practice English communication. These possibilities have made AI technologies increasingly visible in university learning environments. However, the ability to use an AI application does not necessarily mean that a student possesses sufficient AI literacy. Students may know how to enter prompts into ChatGPT or use an automated grammar checker without understanding how these systems generate

information, why their responses may contain errors, or how their outputs should be evaluated.

AI literacy therefore represents a broader educational competence that includes technological knowledge, critical thinking, ethical awareness, and the ability to interact responsibly with artificial intelligence. Long and Magerko (2020) conceptualize AI literacy as a set of competencies that enables individuals to understand, evaluate, and interact effectively with AI technologies. Their framework emphasizes that AI literacy involves more than technical operation because users must also understand the capabilities and limitations of intelligent systems. Similarly, Ng et al. (2021) identify important dimensions of AI literacy, including knowing and understanding AI, applying AI technologies, evaluating AI systems, and developing ethical awareness. These dimensions provide a useful theoretical foundation for examining university students' engagement with AI in foreign language education.

The importance of AI literacy has increased considerably following the introduction of generative AI applications. Unlike traditional language-learning software, generative AI systems can produce original-looking texts, explanations, translations, summaries, and conversational responses based on user instructions. ChatGPT, developed by OpenAI, has attracted considerable attention among university students because it provides immediate responses to a wide range of academic and linguistic questions. Students can use it to explain complicated grammatical structures, generate example sentences, develop essay outlines, and receive feedback on academic writing.

Kasneci et al. (2023) discuss the educational opportunities and challenges associated with large language models. They emphasize the potential of AI systems to support personalized learning and provide interactive assistance. At the same time, they identify important limitations related to inaccurate information, bias, and the need for critical evaluation. These concerns demonstrate why AI literacy should be considered

an essential component of higher education. UNESCO's AI Competency Framework for Students, developed by Miao, Shiohira, and Lao (2024), provides an important international perspective on AI education. The framework identifies four major dimensions of student AI competency: a human-centered mindset, ethics of AI, AI techniques and applications, and AI system design. It also emphasizes the progression from understanding AI to applying and creating AI-based solutions. This framework suggests that university students should not remain passive users of artificial intelligence. Instead, they should develop the knowledge and judgment necessary to evaluate AI systems and participate responsibly in an increasingly technology-driven society. In EFL education, AI literacy has a particularly important role because students frequently use AI applications for language-related activities. These activities include translation, vocabulary learning, grammar correction, essay writing, pronunciation practice, and reading comprehension. However, the purposes and patterns of AI use may differ according to students' proficiency levels, educational backgrounds, digital experience, and institutional policies.

Hossain, Çelik, and Hiniz (2025) conducted a study entitled Exploring EFL Students' AI Literacy in Academic Writing: Insights into Familiarity, Knowledge and Ethical Perceptions. Their research involved 427 Turkish university EFL students from two universities. The findings indicated moderate familiarity with AI technologies and considerable reliance on AI tools for translation and grammatical proofreading. Although students recognized the potential benefits of artificial intelligence, their technical understanding of AI mechanisms remained limited. The study also identified concerns related to plagiarism and academic integrity. This research is particularly relevant because it demonstrates that frequent AI use does not automatically produce advanced AI literacy. Another important investigation was conducted by Van Horn (2024), who explored university students' perceptions of ChatGPT and its role in English language learning in a Korean university context. The qualitative exploratory

study involved 120 students and extended over a 15-week semester. The findings indicated generally positive student attitudes toward ChatGPT and highlighted opportunities for greater engagement and language-learning autonomy. Bayraktar Balkır and Zehir Topkaya (2025) also investigated changing AI usage practices, perceptions, and training needs among EFL students at a Turkish university. Their findings highlighted increasing engagement with AI applications, particularly for vocabulary, grammar, and writing support, while emphasizing the importance of appropriate educational training. Despite the increasing availability of AI applications, important challenges remain. Students may have difficulties identifying inaccurate AI-generated information, distinguishing reliable sources from fabricated references, protecting personal information, and understanding the ethical boundaries of AI-assisted academic work. These issues are particularly relevant to Uzbek universities, where students increasingly use artificial intelligence to support English language learning and academic assignments. Although many students are familiar with applications such as ChatGPT and Grammarly, their understanding of AI limitations and responsible use may differ considerably. Consequently, AI literacy should be developed as an educational competence rather than treated simply as an additional technological skill. The purpose of the present study is to examine AI literacy among university EFL students by analyzing their perceptions, practices, and challenges associated with artificial intelligence. Particular attention is given to technological familiarity, academic applications, critical evaluation, ethical awareness, and the need for structured AI literacy education. The study addresses the following research questions: How do university EFL students perceive artificial intelligence and its role in foreign language learning?

What are the most common practices and purposes of AI use among university EFL students?

SCIENCE CONNECTS PEOPLE

What challenges do students encounter when using AI applications for academic and language-learning activities?

METHODS

The present study employs a qualitative literature-based research design to investigate AI literacy among university EFL students. The methodological approach combines conceptual analysis of AI literacy frameworks with a thematic synthesis of empirical research concerning students' perceptions, practices, and challenges. The theoretical foundation is informed by the AI literacy framework proposed by Long and Magerko (2020), the multidimensional approach developed by Ng et al. (2021), and UNESCO's AI Competency Framework for Students presented by Miao, Shiohira, and Lao (2024). Relevant empirical studies were selected according to their relationship with university students, English language learning, AI literacy, generative AI applications, academic writing, and ethical awareness. Particular attention was given to the investigations conducted by Hossain et al. (2025), Van Horn (2024), and Bayraktar Balkır and Zehir Topkaya (2025).

The literature was examined thematically to identify recurring patterns in students' understanding and use of AI technologies. The analysis focused on three interconnected dimensions. The first dimension concerned students' perceptions of AI, including perceived usefulness, confidence, familiarity, and attitudes toward AI-assisted learning. The second dimension concerned actual and reported practices, including the use of AI for translation, vocabulary development, grammar correction, writing assistance, summarization, and independent language practice. The third dimension focused on challenges, including limited technical understanding, inaccurate information, academic integrity, privacy, and excessive dependence on automated systems. The analysis also considered the relationship between AI literacy and established digital literacy competencies. Although digital literacy and AI literacy are related, they are not identical. Digital literacy primarily concerns the effective use of

SCIENCE CONNECTS PEOPLE

digital technologies and information resources, whereas AI literacy additionally requires an understanding of algorithmic systems, generated outputs, and the limitations of artificial intelligence.

The findings were synthesized to identify educational implications for university EFL programs, particularly in contexts where students use AI applications without receiving systematic instruction. As the present study is a literature-based investigation, it does not claim to have conducted original surveys, interviews, or experiments with Uzbek university students. All participant numbers and empirical findings presented in the results section are attributed to their respective published studies.

RESULTS

The analysis of existing theoretical and empirical research identifies several important dimensions of AI literacy among university EFL students. The findings demonstrate that students generally recognize the usefulness of artificial intelligence for language learning, but their understanding of AI mechanisms, critical evaluation skills, and ethical practices may remain insufficient.

Students' perceptions of artificial intelligence play an important role in determining how frequently and effectively they use AI applications.

University EFL students often consider AI tools useful because they provide quick responses, accessible explanations, and opportunities for independent learning.

ChatGPT, for example, allows students to ask questions about grammar, request explanations of unfamiliar vocabulary, and receive suggestions for improving written assignments. Van Horn (2024) investigated the perceptions of 120 Korean university students concerning ChatGPT in English language learning. The study involved pre-training and post-training surveys, classroom observations, and interviews over a 15-week semester.

The findings indicated generally positive attitudes toward ChatGPT. Students appreciated its potential to support language development, facilitate classroom

SCIENCE CONNECTS PEOPLE

engagement, and provide additional opportunities for interaction. These results suggest that students may perceive generative AI as a useful supplementary resource rather than simply another digital application. However, positive attitudes do not necessarily indicate advanced AI literacy. A student may consider ChatGPT useful without understanding how its responses are generated or how their accuracy should be evaluated. Hossain et al. (2025) provide further evidence of this distinction. Their study of 427 Turkish university EFL students revealed moderate AI familiarity despite students' increasing engagement with AI-supported academic writing. The findings suggest that perceived usefulness and actual technological understanding should be treated as separate dimensions of AI literacy.

Common Practices of AI Use among EFL Students

The second major finding concerns the different ways university EFL students use artificial intelligence in their academic activities. AI applications are increasingly integrated into vocabulary learning, translation, grammar correction, academic writing, reading comprehension, and information processing. One common practice is the use of AI for translation. Students frequently employ automated translation systems to understand unfamiliar words, interpret complicated sentences, and compare expressions in English and their native languages. Another common application involves grammatical correction. Students may submit sentences or paragraphs to AI tools to identify grammatical mistakes and receive explanations of alternative structures. Hossain et al. (2025) found considerable reliance on AI tools for translation and grammatical proofreading among the 427 students included in their investigation. Academic writing represents another important area of AI use. Students may request assistance with brainstorming, organizing ideas, developing outlines, improving vocabulary, and revising written texts. Bayraktar Balkır and Zehir Topkaya (2025) examined changing AI usage practices among EFL students at a Turkish university. Their cross-sectional survey, conducted in two waves, identified increased engagement

with AI applications, especially for vocabulary, grammar, and writing support. These findings indicate that AI use is becoming a regular component of foreign language learning. However, students' purposes of use may differ considerably. Some use AI primarily for simple corrections, while others employ it for more complex academic tasks requiring critical evaluation. This distinction is important because the level of AI literacy cannot be determined solely by the frequency of application use.

Academic writing is one of the areas in which AI literacy becomes particularly important. Students increasingly use generative AI to improve sentence structure, identify grammatical problems, generate academic vocabulary, and receive suggestions concerning coherence and organization. Although these applications may improve the quality of written assignments, students must understand the difference between receiving linguistic assistance and allowing AI to produce the central intellectual content of their work. Hossain et al. (2025) investigated students' familiarity with AI technologies, their understanding of AI, and their ethical perceptions in academic writing. Their findings indicated that students recognized the usefulness of AI applications but demonstrated limited technical understanding of how these systems operate. This suggests that university EFL students may be confident users of AI applications without possessing the knowledge required to evaluate their outputs critically.

Effective AI literacy in academic writing therefore requires the ability to examine generated information, identify inappropriate suggestions, verify references, and maintain responsibility for the final text. Students should understand that AI-generated academic content may contain inaccurate information, fabricated citations, and expressions that are unsuitable for a particular research context.

Critical evaluation is one of the most essential dimensions of AI literacy.

Generative AI systems can produce fluent and convincing responses, but their language quality does not guarantee factual accuracy. Students who accept AI-

SCIENCE CONNECTS PEOPLE

generated information without verification may unintentionally include incorrect explanations, unreliable references, or misleading statements in academic assignments. Long and Magerko (2020) emphasize the importance of understanding AI capabilities and limitations as part of AI literacy. Ng et al. (2021) similarly identify the evaluation of AI technologies as an important dimension of responsible AI engagement. For EFL students, critical evaluation should involve comparing AI-generated explanations with academic textbooks, scholarly articles, dictionaries, and reliable educational resources. For example, when ChatGPT provides a definition of an academic term, students should examine whether the explanation is consistent with authoritative academic sources. Similarly, when AI suggests references for an essay, students should independently verify whether the publications actually exist and whether their bibliographic details are accurate. This practice can help students develop stronger research skills and avoid uncritical dependence on automated information.

Ethical awareness is another central dimension of AI literacy among university students. The increasing use of generative AI has created new questions concerning authorship, plagiarism, transparency, and the appropriate use of technological assistance. Students may understand that AI applications can improve academic writing but remain uncertain about which forms of assistance are acceptable. Hossain et al. (2025) found that ethical concerns were an important dimension of AI literacy among Turkish EFL students. Participants recognized the usefulness of AI but also expressed concerns regarding plagiarism and academic integrity. UNESCO's framework developed by Miao et al. (2024) emphasizes that responsible AI engagement requires ethical awareness and a human-centered approach. In academic environments, students should understand that using AI to explain a grammatical rule is different from submitting an entirely AI-generated essay as independent work. They should also be familiar with institutional policies concerning the disclosure of AI assistance. Clear

SCIENCE CONNECTS PEOPLE

institutional guidelines can help students understand acceptable practices and reduce uncertainty concerning academic integrity.

Another important finding concerns the gap between students' practical familiarity with AI applications and their understanding of the technologies behind them. Many university students can operate ChatGPT and other AI platforms without knowing how generative systems process prompts, produce responses, or generate potentially inaccurate information. Hossain et al. (2025) identified limited technical proficiency and understanding of AI mechanisms among their participants.

This finding suggests that frequent use should not be interpreted as evidence of comprehensive AI literacy. Students need opportunities to understand basic AI concepts, including machine learning, generative models, prompts, algorithmic limitations, and the possibility of biased or inaccurate outputs. Without this knowledge, learners may overestimate the reliability of AI-generated information.

Privacy represents another challenge associated with AI use in higher education.

Students may enter personal information, unpublished research materials, institutional documents, or confidential academic content into AI applications without understanding the possible consequences. Responsible AI literacy requires awareness of data protection and the importance of avoiding unnecessary disclosure of sensitive information. UNESCO’s human-centered approach to AI education emphasizes responsible and safe interaction with artificial intelligence. University students should therefore be informed about the privacy policies of AI platforms and institutional requirements concerning the use of external applications.

The final major finding concerns the importance of systematic AI literacy instruction. Existing research indicates that students often develop their AI knowledge through personal experimentation, online tutorials, social media, and informal communication with classmates. Although these experiences may increase familiarity with AI applications, they do not necessarily provide sufficient knowledge concerning

accuracy, ethics, and critical evaluation. Miao et al. (2024) emphasize the need to integrate AI competencies into educational curricula. Bayraktar Balkır and Zehir Topkaya (2025) also highlight students' changing AI practices and the importance of identifying appropriate training needs. These findings suggest that AI literacy should be addressed through structured university instruction rather than left entirely to individual experimentation.

DISCUSSION

The findings of the present study demonstrate that AI literacy among university EFL students is a multidimensional competence involving technological understanding, practical application, critical evaluation, and ethical responsibility. One of the most important findings is the difference between using AI frequently and understanding it effectively. Hossain et al. (2025) demonstrate that students may regularly use AI applications for translation and grammatical correction while possessing only moderate familiarity with AI technologies. This finding supports the conceptual distinction proposed by Long and Magerko (2020), who emphasize that AI literacy requires more than the ability to interact with technological systems. The findings also indicate that students generally perceive AI applications positively. Van Horn (2024) reports favorable student attitudes toward ChatGPT in a university EFL context. Students appreciated the opportunities for language practice, interaction, and additional learning support. However, positive attitudes should be accompanied by the development of critical awareness. Students must understand that AI applications are not always accurate and that generated responses require independent evaluation. Another important issue concerns the relationship between AI literacy and academic writing.

The growing use of generative AI for grammar correction, translation, and essay development demonstrates the need to prepare students for responsible academic engagement. Bayraktar Balkır and Zehir Topkaya (2025) identify changing patterns of AI use among EFL learners, particularly in vocabulary, grammar, and writing activities.

SCIENCE CONNECTS PEOPLE

These developments suggest that traditional definitions of digital literacy should be expanded to include AI-specific competencies. The ethical dimension is equally important. Students need clear information about plagiarism, authorship, transparency, and institutional rules concerning AI-assisted assignments. UNESCO's framework provides an important foundation for developing these competencies because it emphasizes ethical awareness and a human-centered understanding of artificial intelligence. For Uzbek university students, the findings have particular educational relevance. AI applications can provide valuable support for English language learning, especially when students have limited access to English-speaking environments or individualized language instruction. Nevertheless, the use of AI without sufficient literacy may create difficulties involving inaccurate translations, unreliable information, inappropriate academic writing, and excessive dependence. Universities should therefore move beyond simply encouraging students to use digital applications. They should also teach students how to understand, evaluate, and responsibly apply AI technologies. The most effective approach is likely to combine practical AI training with academic writing instruction, information literacy, critical thinking, and ethical education.

PEDAGOGICAL IMPLICATIONS

The findings have several implications for university EFL teachers and educational institutions. First, AI literacy should be integrated into English language curricula. Students need opportunities to understand the basic principles of generative AI and recognize the limitations of AI-generated responses. Second, teachers should develop activities that require students to compare AI-generated information with reliable academic sources. This can strengthen critical thinking and information verification skills. Third, academic writing instruction should include responsible AI use. Students should learn how to use AI for brainstorming, grammar explanations, vocabulary development, and revision without allowing the technology to replace their

SCIENCE CONNECTS PEOPLE

own intellectual contribution. Fourth, universities should establish transparent institutional policies concerning AI-assisted academic assignments. Students need clear explanations of acceptable practices, authorship, citation, and disclosure requirements.

Finally, teachers should provide practical training in prompt formulation, output evaluation, privacy awareness, and ethical decision-making. These measures can help students become more informed and responsible users of artificial intelligence.

The present study has several limitations. First, it is based on a qualitative literature-based analysis rather than an original empirical investigation involving Uzbek university students. Second, the reviewed studies were conducted in different educational and cultural contexts. Differences in institutional policies, technological access, English proficiency, and digital experience may influence students' perceptions and practices. Third, AI literacy is a broad concept that can be measured through different questionnaires, performance-based tasks, interviews, and practical assessments. Consequently, findings from different studies cannot always be directly compared.

Another limitation concerns the rapid development of generative AI technologies. New applications and features may change students' learning practices and create additional educational challenges. Future research should investigate AI literacy among Uzbek university EFL students through mixed-methods research involving questionnaires, interviews, classroom observations, and practical AI literacy assessment tasks. Such research could examine the relationship between students' AI knowledge, frequency of use, critical evaluation skills, and academic performance. It would also be valuable to investigate whether structured AI literacy training produces measurable improvements in students' responsible use of artificial intelligence.

CONCLUSION

The present study examined AI literacy among university EFL students, focusing on their perceptions, practices, and challenges associated with artificial intelligence.

SCIENCE CONNECTS PEOPLE

The findings indicate that students increasingly recognize the usefulness of AI applications for foreign language learning, particularly in translation, vocabulary development, grammatical correction, academic writing, and independent study. However, the analysis also demonstrates that frequent use of AI does not necessarily indicate sufficient AI literacy.

Research by Hossain et al. (2025) highlights the gap between practical familiarity with AI applications and students' understanding of AI mechanisms and ethical requirements. Similarly, UNESCO’s framework developed by Miao et al. (2024) emphasizes the importance of technological knowledge, human-centered thinking, and ethical responsibility. For university EFL students, AI literacy should therefore include the ability to understand AI technologies, evaluate generated information, use appropriate applications, protect personal data, and maintain academic integrity. In the context of Uzbek higher education, systematic AI literacy education can help students use technological resources more effectively while strengthening their independent learning and critical thinking abilities.

In conclusion, AI literacy should be regarded as an essential academic competence in contemporary foreign language education. Universities should not focus exclusively on teaching students how to operate AI applications but should also develop their ability to understand, evaluate, and use artificial intelligence critically, ethically, and responsibly.

References

1. Bayraktar Balkır, N., & Zehir Topkaya, E. (2025). AI in foreign language learning: Changing usage practices, perceptions, and training needs among EFL students. Bogazici University Journal of Education, 42(3). https://dergipark.org.tr/en/pub/buje/article/1687891

2. Hossain, Z., Çelik, Ö., & Hiniz, G. (2025). Exploring EFL students' AI literacy in academic writing: Insights into familiarity, knowledge and ethical perceptions.

Journal of Theoretical Educational Science, 18(1), 157–181. https://eric.ed.gov/?id=EJ1462470

3. Kasneci, E., Sessler, K., Küchemann, S., Bannert, M., Dementieva, D., Fischer, F., Gasser, U., Groh, G., Günnemann, S., Hüllermeier, E., Krusche, S., Kutyniok, G., Michaeli, T., Nerdel, C., Pfeffer, J., Poquet, O., Sailer, M., Schmidt, A., Seidel, T., ... Kasneci, G. (2023). ChatGPT for good? On opportunities and challenges of large language models for education. Learning and Individual Differences, 103, Article 102274. https://doi.org/10.1016/j.lindif.2023.102274

4. Long, D., & Magerko, B. (2020). What is AI literacy? Competencies and design considerations. In Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems (pp. 1–16). Association for Computing Machinery. https://doi.org/10.1145/3313831.3376727

5. Miao, F., Shiohira, K., & Lao, N. (2024). AI competency framework for students. UNESCO. https://unesdoc.unesco.org/

6. Ng, D. T. K., Leung, J. K. L., Chu, S. K. W., & Qiao, M. S. (2021). Conceptualizing AI literacy: An exploratory review. Computers and Education: Artificial Intelligence, 2, Article 100041. https://doi.org/10.1016/j.caeai.2021.100041

7. Van Horn, K. R. (2024). ChatGPT in English language learning: Exploring perceptions and promoting autonomy in a university EFL context. TESL-EJ, 28(1). https://doi.org/10.55593/ej.28109a8