European International Journal of Pedagogics (ISSN: 2751-OOOX)

Received: 22 September 2026 | Accepted: 18 October 2026 | Published: 06 November 2026

DOI: 10.55640/eijp-06-11-02

RESEARCH ARTICLE

Didactic Potential of Dialogic Collaboration with Artificial Intelligence in Developing Students' Communicative Competencies in An Integrative Learning Environment

Isaboyeva Dilyora

Acting Associate Professor at Kokand State University, Uzbekistan

VOLUME: Vol.06 Issue11 2026

PAGE: 11-17

Copyright © 2026 European International Journal of Pedagogics, this is an open-access article distributed under the terms of the Creative Commons Attribution-Noncommercial-Share Alike 4.0 International License. Licensed under Creative Commons License a Creative Commons Attribution 4.0 International License.

Abstract

This article examines the didactic potential of dialogic collaboration with artificial intelligence in developing students' communicative competencies within an integrative learning environment. The study explores the theoretical foundations, pedagogical mechanisms, and methodological conditions for integrating artificial intelligence into communicative learning activities. Particular attention is given to the application of AI-powered conversational systems in developing students' linguistic, sociolinguistic, pragmatic, and interactive communication skills. The research employs theoretical analysis, comparative analysis, and pedagogical modeling to investigate how human–AI interaction can support personalized learning, critical thinking, collaborative problem-solving, and communicative independence. Based on the synthesis of existing educational research, an integrative pedagogical model is proposed that combines dialogic interaction, interdisciplinary learning, adaptive feedback, and reflective assessment. The findings indicate that AI-supported dialogue offers opportunities to expand communicative practice, accommodate individual learning needs, and strengthen students' participation in meaningful educational interactions. The article also identifies the importance of teacher mediation, ethical considerations, and balanced human–AI collaboration. The proposed approach contributes to the methodological development of integrative education and establishes a theoretical foundation for further empirical investigation of AI-assisted communicative competence development.

KEYWORDS

Integrative learning environment, artificial intelligence, dialogic collaboration, communicative competence, interactive learning, pedagogical technologies, adaptive feedback, interdisciplinary integration, critical thinking, personalized education.

INTRODUCTION

The rapid development of artificial intelligence has created new opportunities for transforming educational processes and improving students' communicative competencies. Contemporary education increasingly emphasizes the integration of knowledge, skills, and practical experience rather than the isolated acquisition of subject-specific information. In this context, an integrative learning environment provides opportunities for connecting different academic disciplines, combining traditional and innovative teaching methods, and encouraging students to participate in

meaningful communication. Artificial intelligence introduces additional possibilities by supporting interactive dialogue, providing individualized feedback, and creating educational situations that require active intellectual engagement.

Communicative competence is widely recognized as an essential component of students' academic achievement, social adaptation, and professional development. Canale and Swain [1] established important theoretical foundations for communicative approaches to language teaching by emphasizing the relationship between grammatical knowledge, sociolinguistic appropriateness, and communicative strategies. Their framework demonstrates that successful communication requires more than linguistic accuracy; it also involves understanding social contexts and selecting appropriate communicative behavior. These principles remain relevant in contemporary educational environments characterized by digital interaction and interdisciplinary learning.

The sociocultural theory of Vygotsky [2] provides another important foundation for understanding communicative competence development. According to this perspective, learning is closely associated with social interaction, language-mediated activity, and the gradual internalization of knowledge. Communication functions not merely as a means of exchanging information but also as a mechanism through which students construct meaning and develop higher cognitive abilities. Dialogic collaboration with artificial intelligence can be interpreted within this theoretical perspective as an additional form of mediated learning, although artificial intelligence cannot replace the social and emotional dimensions of human interaction.

Recent developments in generative artificial intelligence have expanded the capabilities of educational technologies. AI-powered conversational systems can generate contextually relevant questions, simulate communicative situations, and provide immediate responses to students' contributions. Kohnke, Moorhouse, and Zou [3] emphasize the educational potential of ChatGPT for language teaching and learning while acknowledging the digital competencies necessary for responsible implementation. These technologies may support communicative activities by enabling students to practice language use, examine alternative perspectives, and revise their arguments in response to feedback.

Nevertheless, the educational value of artificial intelligence depends on the pedagogical conditions under which it is implemented. Unstructured interactions with conversational systems may encourage superficial responses, excessive dependence on automated assistance, and insufficient critical evaluation of generated information. Consequently, the integration of artificial intelligence into educational communication requires clearly defined learning objectives, purposeful instructional strategies, and systematic teacher guidance.

The scientific problem addressed in this study concerns the identification of didactic mechanisms through which dialogic collaboration with artificial intelligence can contribute to students' communicative competence development in an integrative learning environment. Although existing research has examined artificial intelligence in language education, the pedagogical relationship between interdisciplinary integration, structured human–AI dialogue, and communicative competence requires further conceptual clarification.

The purpose of this article is to analyze the didactic potential of dialogic collaboration with artificial intelligence, identify the pedagogical conditions necessary for its effective implementation, and develop a conceptual model for strengthening students' communicative competencies through integrative educational activities.

The research adopts a qualitative theoretical approach based on the analysis and synthesis of scientific literature concerning communicative competence, dialogic learning, artificial intelligence in education, and interdisciplinary pedagogical integration. The methodological framework combines sociocultural learning theory, competency-based education, dialogic pedagogy, and technology-supported learning principles.

The theoretical foundation incorporates the communicative competence framework developed by Canale and Swain [1], Vygotsky's sociocultural theory [2], and the dialogic learning perspective presented by Mercer and Littleton [4]. These approaches were selected because they explain how communicative abilities develop through purposeful interaction, collaborative meaning-making, and guided participation in educational activities.

The study also examines contemporary research addressing the opportunities and limitations of artificial intelligence in educational practice. Particular attention is given to investigations of conversational agents, adaptive learning environments, automated feedback systems, and technology-

mediated communication. The analysis considers both the educational benefits of AI-assisted learning and the methodological limitations associated with its implementation.

Comparative analysis is used to identify similarities and differences between traditional dialogic learning and AI-supported communicative interaction. The comparison focuses on the organization of dialogue, opportunities for feedback, learner participation, instructional adaptability, and the role of pedagogical mediation.

Pedagogical modeling is employed to formulate an integrated structure for organizing communicative activities through artificial intelligence. The model connects educational objectives, communicative content, dialogic procedures, instructional support, and assessment criteria. Its theoretical validity is examined through consistency with established pedagogical principles and published research findings.

The study does not involve newly collected experimental data or statistical testing. Accordingly, the results represent a conceptual synthesis and proposed pedagogical model rather than evidence of experimentally verified improvements in students' communicative competencies. The suggested instructional procedures and assessment criteria provide a foundation for subsequent classroom-based empirical research.

The theoretical analysis indicates that dialogic collaboration with artificial intelligence can be regarded as a technology-mediated pedagogical process in which students construct knowledge through purposeful interaction with intelligent conversational systems. Unlike conventional digital learning resources that primarily provide predetermined information, generative AI systems can respond dynamically to students' questions, adapt explanations, and support extended exchanges of ideas. This functionality creates opportunities for organizing educational dialogue according to individual learning needs and communicative objectives.

The pedagogical significance of such interaction becomes particularly evident when considered through the concept of collaborative knowledge construction. Mercer and Littleton [4] demonstrate the importance of dialogue in children's intellectual development, emphasizing how language-mediated collaboration contributes to reasoning and shared understanding. Within an AI-supported learning environment, students may engage in comparable processes of questioning, explanation, and argumentation. However, human–AI dialogue should be understood as a supplementary instructional mechanism rather than an equivalent substitute for authentic interpersonal communication.

The ICAP framework developed by Chi and Wylie [5] further explains the relationship between learner engagement and educational outcomes. The framework distinguishes passive, active, constructive, and interactive forms of cognitive engagement. Its application to AI-supported education suggests that students are more likely to benefit when conversational technologies require them to generate explanations, evaluate arguments, and develop new interpretations rather than reproduce automatically generated answers.

Consequently, the effectiveness of dialogic collaboration depends not simply on the availability of artificial intelligence but on the intellectual quality of the interaction. Educational dialogue becomes meaningful when students formulate questions independently, justify their positions, identify contradictions, and critically examine the responses they receive.

The analysis identifies several interconnected didactic opportunities arising from the integration of artificial intelligence into communicative educational activities. One significant opportunity concerns the individualization of communication practice. AI-powered conversational systems can adjust linguistic complexity, generate alternative explanations, and provide feedback corresponding to students' demonstrated abilities. This adaptability is particularly important in heterogeneous classrooms where students possess different levels of communicative proficiency.

Another opportunity involves the development of argumentative communication. Students can use AI-generated questions and contrasting viewpoints to construct evidence-based arguments, defend their opinions, and reconsider initial assumptions. During such activities, communicative competence develops through the relationship between linguistic expression and analytical reasoning. Students learn not only to communicate information but also to explain its relevance, establish logical connections, and respond appropriately to disagreement.

Artificial intelligence may also support pragmatic communication by simulating educational situations involving different social roles. For example, students can participate in

simulated interviews, academic discussions, collaborative decision-making exercises, and problem-solving conversations. These activities provide opportunities to practice appropriate language selection, conversational organization, and communicative strategies in different contexts.

Research on educational artificial intelligence supports the potential value of these applications. Zawacki-Richter and colleagues [6] identified personalized learning and intelligent tutoring among important areas of AI application in education. Kasneci and colleagues [7] similarly highlighted opportunities for generating educational content and supporting individualized learning while emphasizing the necessity of critical evaluation and human supervision.

A meta-analysis by Wang and colleagues [8], incorporating 28 studies and 70 effect sizes, reported a positive overall effect of chatbot-assisted learning on language performance, with an estimated effect size of \(g=0.484\). Nevertheless, these findings concern language-learning outcomes and cannot automatically establish equivalent benefits for every dimension of communicative competence or interdisciplinary education.

An integrative learning environment creates favorable conditions for connecting communicative activities with subject-specific knowledge and practical problems. Artificial intelligence can facilitate this integration by generating interdisciplinary questions, presenting alternative interpretations, and supporting communication across different educational contexts.

For instance, a learning activity examining environmental responsibility may combine literary analysis, natural sciences, and civic education. Students initially analyze a literary text addressing human relationships with nature. They subsequently engage in an AI-supported dialogue concerning the ethical implications of environmental decisions, relevant scientific explanations, and possible community responses.

During this process, students formulate arguments that connect literary interpretation with scientific knowledge and social responsibility. The AI system may introduce counterarguments or request additional evidence, while the teacher ensures the scientific accuracy and pedagogical relevance of the discussion. Students subsequently present their conclusions to classmates, compare perspectives, and develop a collective response to the problem.

Such integration contributes to the development of communicative flexibility because students must explain concepts across disciplinary boundaries and adapt their communication to different purposes. It also enables teachers to connect abstract educational content with situations reflecting contemporary social realities.

The proposed approach does not require every educational interaction to involve artificial intelligence. Its didactic value is greatest when digital dialogue complements classroom discussion, independent research, collaborative learning, and teacher-guided reflection.

Based on the theoretical analysis, an integrative pedagogical model of AI-supported dialogic collaboration is proposed. The model consists of interconnected goal-oriented, content-related, methodological, and assessment components that jointly support communicative competence development.

The goal-oriented component focuses on developing students' ability to communicate coherently, participate constructively in discussions, interpret different perspectives, and formulate reasoned conclusions. These objectives are connected with the broader educational aim of preparing learners for meaningful participation in academic and social communication.

The content-related component incorporates interdisciplinary learning materials, communicative situations, authentic texts, and problem-based assignments. Educational content should reflect students' developmental characteristics, linguistic abilities, and existing knowledge while encouraging connections between academic disciplines.

The methodological component organizes the learning process through guided dialogic interaction. Students first examine a problem and formulate an initial response independently. They then engage in AI-supported questioning, clarification, and argumentative discussion. The resulting ideas are evaluated through peer interaction and teacher-guided reflection. This sequence maintains the student's responsibility for intellectual decisions while using artificial intelligence to enrich the process of inquiry.

The assessment component focuses on observable communicative performance. Students' contributions can be evaluated according to the clarity of expression, logical organization, relevance of arguments, responsiveness to alternative viewpoints, and ability to sustain purposeful interaction. Reflective activities additionally examine how

students revise their positions and evaluate the reliability of information obtained through AI-supported dialogue.

These components form a coherent methodological structure in which artificial intelligence functions as a supplementary dialogic resource under teacher supervision. The model is intended for subsequent pedagogical testing rather than presented as an experimentally validated intervention.

Assessing communicative competence within an integrative learning environment requires attention to both the quality of communication and the intellectual processes underlying students' responses. Conventional assessments that emphasize grammatical accuracy or factual reproduction alone may not adequately reflect students' abilities to negotiate meaning, evaluate arguments, and participate in interdisciplinary discussions.

The Common European Framework of Reference for Languages: Companion Volume [13] provides a relevant reference for considering communicative interaction and mediation. Although originally designed for language education, its emphasis on interaction and meaning-making offers useful principles for evaluating communication in integrated educational activities.

Within the proposed model, assessment should examine students' initial responses, the development of their reasoning during AI-supported interaction, and their subsequent independent performance. This approach helps distinguish genuine competence development from improvements resulting primarily from automated assistance.

Teacher observation, dialogue transcripts, reflective writing, and independent communicative tasks may provide complementary evidence. Particular attention should be given to students' ability to transfer communication strategies from AI-supported practice to authentic classroom discussions.

The findings of this theoretical investigation suggest that dialogic collaboration with artificial intelligence possesses considerable didactic potential when integrated into a structured pedagogical environment. Its principal contribution lies in expanding opportunities for meaningful communication, enabling students to examine alternative viewpoints and receive responsive feedback during learning activities.

However, the educational benefits of artificial intelligence should not be interpreted as automatic consequences of technological implementation. Research by Lo and colleagues [9], reviewing 70 empirical studies of ChatGPT in English language education, identified important opportunities for personalized learning while also highlighting concerns related to inaccurate information, academic integrity, and insufficient evidence concerning certain language skills. These findings indicate that instructional design remains essential for translating technological capabilities into meaningful learning experiences.

A fundamental distinction must also be maintained between simulated communication and authentic human interaction. Artificial intelligence can reproduce conversational patterns and generate socially appropriate responses, but it does not participate in communication with the same personal experiences, emotional understanding, or social responsibilities as human interlocutors. Therefore, the development of empathy, interpersonal responsibility, and genuine collaborative decision-making continues to require direct interaction among students and teachers.

Another concern involves the possibility that students may become excessively dependent on automatically generated explanations. Tlili and colleagues [10] identified ethical and educational challenges associated with conversational AI, including misinformation, privacy concerns, and academic dishonesty. These risks indicate the importance of developing students' ability to question technological outputs and maintain independent intellectual judgment.

The UNESCO guidance developed by Miao and Holmes [11] emphasizes human-centered, age-appropriate, and ethically responsible approaches to generative artificial intelligence in education. Accordingly, successful integration requires appropriate data protection, institutional oversight, and clear expectations concerning students' independent use of AI systems. The UNESCO AI Competency Framework for Students [12] additionally highlights critical judgment, ethical awareness, and responsible participation in AI-supported environments.

For school-level education, these considerations are particularly important because students may not consistently distinguish reliable information from plausible but inaccurate AI-generated content. Teachers must therefore establish explicit rules for verifying sources, protecting personal information, and disclosing the use of automated assistance.

The proposed model also has methodological limitations. It represents a theoretical synthesis rather than an experimental

investigation, and its effectiveness requires empirical validation across different educational settings. Future research should employ appropriately designed comparative studies, examining changes in students' communicative performance, independent reasoning, and participation in authentic dialogue. Longitudinal investigation would help determine whether improvements achieved during AI-supported activities are maintained and transferred to communication beyond the digital environment.

Furthermore, educational contexts characterized by limited technological infrastructure, unequal digital access, or insufficient teacher preparation may encounter additional implementation challenges. Addressing these conditions requires professional development and instructional strategies that preserve meaningful learning opportunities regardless of students' access to advanced technologies.

Dialogic collaboration with artificial intelligence represents a promising approach to developing students' communicative competencies within an integrative learning environment. The theoretical analysis demonstrates that AI-supported educational dialogue can provide opportunities for personalized communication practice, argumentative reasoning, interdisciplinary knowledge integration, and reflective learning.

The proposed pedagogical model connects educational objectives, interdisciplinary content, dialogic instructional procedures, and communicative assessment within a unified methodological structure. Its distinctive feature is the combination of AI-supported interaction with independent student reasoning, peer collaboration, and teacher-guided reflection.

The didactic potential of artificial intelligence depends primarily on purposeful pedagogical organization rather than technological sophistication alone. Effective implementation requires appropriate learning objectives, critical evaluation of AI-generated information, ethical safeguards, and continuous teacher involvement.

The study establishes a conceptual foundation for integrating artificial intelligence into communicative education. Further empirical investigation is necessary to determine the effectiveness of the proposed model and identify the conditions under which dialogic collaboration produces sustainable improvements in students' communicative competencies.

REFERENCES

1. Canale M., Swain M. Theoretical bases of communicative approaches to second language teaching and testing // Applied Linguistics. – 1980. – Vol. 1, No. 1. – P. 1–47. – DOI: 10.1093/applin/I.1.1.
2. Vygotsky L. S. Mind in Society: The Development of Higher Psychological Processes / Ed. by M. Cole, V. John-Steiner, S. Scribner, E. Souberman. – Cambridge, MA: Harvard University Press, 1978. – DOI: 10.2307/j.ctvjf9vz4.
3. Kohnke L., Moorhouse B. L., Zou D. ChatGPT for language teaching and learning // RELC Journal. – 2023. – Vol. 54, No. 2. – P. 537–550. – DOI: 10.1177/00336882231162868.
4. Mercer N., Littleton K. Dialogue and the Development of Children's Thinking: A Sociocultural Approach. – London: Routledge, 2007. – 176 p. – URL: Publisher record.
5. Chi M. T. H., Wylie R. The ICAP framework: Linking cognitive engagement to active learning outcomes // Educational Psychologist. – 2014. – Vol. 49, No. 4. – P. 219–243. – DOI: 10.1080/00461520.2014.965823.
6. Zawacki-Richter O., Marín V. I., Bond M., Gouverneur F. Systematic review of research on artificial intelligence applications in higher education – where are the educators? // International Journal of Educational Technology in Higher Education. – 2019. – Vol. 16. – Article 39. – DOI: 10.1186/s41239-019-0171-0.
7. Kasneci E. et al. ChatGPT for good? On opportunities and challenges of large language models for education // Learning and Individual Differences. – 2023. – Vol. 103. – Article 102274. – DOI: 10.1016/j.lindif.2023.102274.
8. Wang F., Cheung A. C. K., Neitzel A. J., Chai C. S. Does chatting with chatbots improve language learning performance? A meta-analysis of chatbot-assisted language learning // Review of Educational Research. – 2025. – Vol. 95, No. 4. – P. 623–660. – DOI: 10.3102/00346543241255621.
9. Lo C. K., Yu P. L. H., Xu S., Ng D. T. K., Jong M. S.-Y. Exploring the application of ChatGPT in ESL/EFL education and related research issues: A systematic review of empirical studies // Smart Learning Environments. – 2024. – Vol. 11. – Article 50. – DOI:

10.1186/s40561-024-00342-5.

10. Tlili A., Shehata B., Adarkwah M. A., Bozkurt A., Hickey D. T., Huang R., Agyemang B. What if the devil is my guardian angel: ChatGPT as a case study of using chatbots in education // Smart Learning Environments. – 2023. – Vol. 10. – Article 15. – DOI: 10.1186/s40561-023-00237-x.

11. Miao F., Holmes W. Guidance for Generative AI in Education and Research. – Paris: UNESCO, 2023. – URL: UNESCO publication.

12. Miao F., Shiohira K., Lao N. AI Competency Framework for Students. – Paris: UNESCO, 2024. – URL: UNESCO publication.

13. Council of Europe. Common European Framework of Reference for Languages: Learning, Teaching, Assessment – Companion Volume. – Strasbourg: Council of Europe Publishing, 2020. – URL: Official CEFR Companion Volume.