

# MENTAL ENLIGHTENMENT SCIENTIFIC – METHODOLOGICAL JOURNAL



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### ARTIFICIAL INTELLIGENCE CAPABILITIES IN EDUCATION

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#### ABOUT ARTICLE

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**Abstract:** Artificial Intelligence (AI) is rapidly reshaping modern education, creating new opportunities for enhancing the professional competence of English language teachers. This article discusses the integration of AI technologies in developing pedagogical skills, designing curricula, supporting personalized learning, and providing methodological assistance for educators. It also highlights AI's ability to refine teaching methods, build adaptive learning environments, and offer data-driven analytical insights to improve educational outcomes. Key challenges and ethical issues associated with the use of AI in educational contexts are examined as well. By effectively utilizing AI tools, English language teachers can significantly strengthen their professional practice, boost student engagement, and equip learners with language competencies suited to global communication needs.

**Introduction.** In recent years, the integration of artificial intelligence (AI) in education has transformed traditional teaching methods, offering innovative solutions to enhance learning outcomes and teacher effectiveness. This chapter explores the profound impact of AI technologies specifically on the professional development of English language teachers. By

leveraging AI capabilities, educators can improve their teaching methodologies, personalize learning experiences, and adapt to the demands of modern education.

Managing the development of students' professional-communicative competence in the process of teaching them foreign languages at higher educational institutions of pedagogy relies on the knowledge students have acquired. This involves creating specific conditions for independently solving communicative tasks through modeling professional interaction situations or studying scientific literature in a foreign language.

Artificial Intelligence encompasses the simulation of human intelligence processes by machines, particularly computer systems. In education, AI applications range from automated grading systems to personalized tutoring platforms, aimed at improving educational processes and outcomes.

AI technologies in language learning focus on natural language processing (NLP), machine learning algorithms, and deep learning models to analyze and generate language data. These technologies enable adaptive learning systems, language translation tools, and intelligent tutoring systems tailored to individual student needs.

AI supports English language teachers in developing effective pedagogical strategies through data-driven insights and personalized recommendations. AI-powered analytics help educators identify student learning patterns, assess comprehension levels, and adjust instructional methods accordingly.

AI facilitates personalized learning experiences by creating adaptive learning pathways based on student performance and preferences. Teachers can utilize AI-powered platforms to deliver customized content, exercises, and assessments that cater to diverse learning styles and proficiency levels.

AI automates feedback mechanisms and assessment processes, providing instant evaluations of student assignments, language proficiency tests, and speaking assessments. This enables teachers to focus more on instructional delivery and individualized support rather than administrative tasks.

**Research methodology.** Intelligent Tutoring Systems use AI algorithms to provide personalized guidance and feedback to students, fostering interactive and engaging learning environments. ITS platforms support language acquisition through adaptive exercises, simulations, and real-time progress tracking.

AI-driven language translation tools aid both teachers and students in overcoming language barriers, facilitating communication and comprehension across diverse linguistic backgrounds. These tools enhance global collaboration and access to educational resources.

AI-based speech recognition technologies assist in improving students' pronunciation and fluency in English. Interactive applications provide real-time feedback on pronunciation accuracy, intonation, and language usage, promoting oral proficiency development.

The integration of AI in education raises ethical considerations regarding data privacy, algorithm bias, and the equitable access to AI-driven resources. Educators must address these concerns to ensure responsible and inclusive use of technology in teaching practices.

Effective implementation of AI technologies requires comprehensive training and ongoing professional development for educators. Training programs should focus on AI literacy, pedagogical integration, and the utilization of AI tools to enhance teaching effectiveness.

Teachers need to adapt to rapid technological advancements and evolving AI capabilities in education. Continuous learning and flexibility are essential to harness the full potential of AI for improving instructional practices and student outcomes.

Advancements in AI-driven learning analytics will enable deeper insights into student learning behaviors, cognitive processes, and academic performance trends. Predictive analytics models can forecast learning outcomes and inform targeted interventions.

The integration of VR and AR with AI technologies offers immersive learning experiences in language acquisition. Virtual simulations and augmented content enhance engagement, cultural understanding, and language immersion for students.

AI algorithms can assist in designing adaptive curricula that align with educational standards, linguistic proficiency levels, and cultural relevance. AI-driven curriculum frameworks promote interdisciplinary learning and personalized educational pathways.

To enhance the development of a specialist's communicative competence in English within a pedagogical higher education institution, it is crucial to consider the following tasks:

1. Identify the structural components of communicative competence through analyzing professional activities.
2. Develop stages for forming communicative competence in English.
3. Expedite the improvement of the process for developing communicative competence in English.
4. Organize conferences, role plays, and cooperative games to introduce students into the foreign language environment through reading original literature.
5. Broaden professional horizons by studying specific (professional) literature.
6. Arrange lessons (or their parts) in English throughout the general education institution.

These steps will contribute effectively to the enhancement of a professional's communicative competence in English within a pedagogical higher education institution.

The composition of communicative professional competence includes the following:

- Mastery of terminology in the field of English language didactics and its independent application in professional-oriented communication contexts.
- Selection of didactic materials, adaptation of activities (lessons) in English, and enhancement of analytical skills within the framework of communicative contexts.
- Advancement of principles for considering cultural specifics in designing educational processes for learning English, focusing on communicative competencies.
- Preparation to conduct professional communication in both oral and written forms in one's native language and in English to fulfill professional tasks.

These components are integral to developing communicative professional competence in the field of English language education.

**Analysis and results.** In our opinion, developing the gradual acquisition of necessary knowledge and skills contributes to advancing professional and communicative competencies, enabling students to activate their professional knowledge in challenging communicative situations. Moreover, utilizing teaching technologies that simulate the process of entering professional activities effectively supports the development of English language teachers' professional competencies related to professional communication. Innovations in pedagogy suggest various ways for students to use foreign languages for professional purposes: dialogues on pedagogical situations, analyzing pedagogical texts, modeling situations, activities, and educational events.

Beyond the foreign language environment, it is not sufficient to rely solely on restricted communicative or communicative exercises to enhance communicative competence. It is crucial to encourage students to think independently, resolve issues, and discuss possible solutions in educational settings, focusing their attention on the substance of their ideas. In turn, language should serve its direct function—expressing these ideas.

Introducing English language teachers to professional terminology and pedagogical topics enables them to engage in effective socio-professional and cultural interactions, showcasing the active use of the language in various social-professional and cultural contexts.

Through practical trials and experiences, we have implemented tasks aimed at enhancing students' professional competence in a foreign language. This includes searching and selecting linguistic and professional information, employing problem-based and project-

based learning technologies, creating innovative pedagogical situations in activities, and utilizing effective communication technologies.

In developing a model for enhancing the professional-pedagogical competence of English language teachers, we focused on students' ability to search for, analyze, comprehend, and select essential information in linguistic and professional domains. This attention is crucial because such knowledge enhances the overall cultural and professional competence of students in higher educational institutions of pedagogy, aligning with the country's linguistic norms and reflecting its cultural objects. The material is presented through a lens that emphasizes its professional orientation.

In organizing challenging project tasks (particularly those utilizing the internet), students' interests were taken into account, focusing on English language teachers-in-training. Tasks were proposed for students in the form of linguistic, communicative, and professional-level challenges, involving searching for information in English, analyzing and synthesizing it, summarizing it, and presenting it systematically. The outcomes of these activities by students were consolidated and presented in summarized forms such as diagrams, tables, concise summaries, and oral presentations.

In the learning process, the logistical challenges related to selecting internet sources, reworking them, and utilizing them include the following:

- Searching for texts relevant to topics aligned with one of the main specialties of the faculty from internet sources.
- Translating and reworking these texts (including their main purpose, structure, and size).
- Revising texts with teacher assistance based on specified parameters or within the framework of a specific pedagogical subject content (summarization, identifying problematic elements, compiling glossaries).
- Presenting prepared texts to other students.

Such tasks, firstly, enable teachers to enhance skills such as understanding, reflection, imagination, attention, and memory; secondly, to perform intellectual operations such as exploration, classification, systematization, generalization, and others; thirdly, to automate language skills in English and, consequently, to provide services for the completion of communicative-speech skills. Altogether, these enable teachers to enhance their professional competence in English. Real foreign printed and audio texts can be used as a source of linguistic lessons outside of linguistic education in psychological-pedagogical research, and our experience predicts that the introduction of innovative pedagogical issues into the composition

of educational materials in the process of teaching students in a foreign language is a necessary condition for developing their professional thinking.

An innovative pedagogical situation is the objective part in which the purposes of the educational process, the content, the forms of mutual relations of participants, and methods are described. It has been established that the source of innovative pedagogical situations is the difference between the goals and intentions of the subjects of educational and educational activities. The task that lies before teachers is to strategically focus on the characteristics and make broad changes in educational practice or take a tactical approach to changing a specific educational situation. These tasks are situational innovative tasks. A situationally innovative task can be related to the activity area of teachers and students with the field of activity.

The didactic significance of innovative tasks lies in the fact that students learn subject materials within the context of professional activities, synthesizing materials from various disciplines in the pedagogical environment.

In the process of implementing innovative pedagogical tasks, we emphasize the need for students to acquire knowledge acquisition methods essential for independent mastery of the subject matter. These include gathering necessary information, understanding their professional significance, reviewing in memory, forming ideas for logical memorization of materials, evaluation, analysis, adaptation of text materials, and working with dictionaries and reference books.

In teaching foreign languages, our approaches to utilizing and analyzing innovative pedagogical situations are divided into two types from our perspective:

1. Practical-analytical: Analysis of pedagogical information studied in a foreign language, analysis of innovative situations;

2. Dialogue: Annotation of pedagogical texts, evaluation of their content, posing questions; completion of creative tasks in the pedagogical content by students; flawless completion of tasks provided in the process of flawless pedagogical operations, production of technological structures for exercises, and written analysis of lessons in a foreign language

3. Practical - creative: field trips, game scenarios, role-playing games; contests, quizzes, simulating pedagogical interactions; modeling lesson segments or educational event scenarios.

Special attention has been paid to developing students' knowledge through the main types of professional speaking activities in English, enhancing their ability to engage in direct (oral) and indirect (through books) communication in English.

Pedagogical methods were used to enhance speech communication skills: using informative and interesting learning materials during class activities and independent student work; continuously adapting professional communication situations related to speech activities for students; assigning such speech tasks to students, making it easy for them to establish speech materials during the exercises; using familiar speech materials for review tasks during exercises; continuously changing and improving speech exercises in combination with speech materials by students; constantly updating the educational and methodical provision of the educational process.

Alongside this, we have reached the enhancement of students' interest and motivation in mastering the English language by appealing to various forms of communicative interactions:

1. Formal individual communication;
2. Formal conversation;
3. Informal (casual) conversation;
4. Formal group conversation;
5. Monologue within a group;
6. Public "collaborative communication."

Students need to consistently engage in various activities. These involve responding to a diverse array of questions, practically exercising expressing their opinions on professional topics. This provides the teacher with opportunities to timely identify and address gaps and deficiencies in students' knowledge and skills.

Integration of the English language with other disciplines such as pedagogy, psychology, and the history of education helps activate the process of teaching English in a professionally oriented manner. It contributes to:

- Stimulating interest in subject learning (enhances communicative motivation);
- Developing verbal reasoning abilities;
- Perfecting verbal expressions;
- Forming independent knowledge;
- Broadening students' worldview experiences.

Artificial Intelligence (AI) is revolutionizing educational practices, including curriculum design, by offering data-driven insights and adaptive learning solutions. In the context of English language teaching, AI-based curriculum design holds immense potential to enhance instructional quality, personalize learning experiences, and optimize educational outcomes for students. This section explores the principles, benefits, challenges, and future implications of AI in shaping curriculum frameworks tailored for English language learners.

**Conclusion.** Artificial Intelligence presents transformative opportunities for enhancing the professional competence of English language teachers. By leveraging AI technologies, educators can foster innovation in teaching methodologies, empower personalized learning experiences, and prepare students for linguistic and cultural competence in a globalized world. However, addressing ethical concerns, ensuring equitable access, and providing comprehensive teacher training are critical for the responsible integration of AI in education.

AI-based curriculum design represents a paradigm shift in English language education, empowering educators to create dynamic, personalized learning experiences that cater to diverse student needs and optimize educational outcomes. By leveraging AI technologies responsibly, educational stakeholders can foster innovation, equity, and excellence in preparing students for linguistic proficiency and global citizenship in the 21st century.

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