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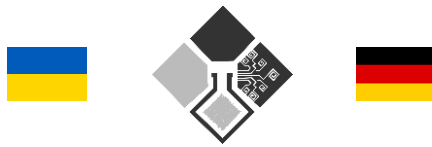Non-governmental Organization
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SECTION 22.
PEDAGOGY AND EDUCATION

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ARTIFICIAL INTELLIGENCE AS A TOOL FOR ENHANCING THE EFFICIENCY OF PERSONALISED FOREIGN LANGUAGE LEARNING IN POSTGRADUATE EDUCATION

Abstract. *This article explores the potential of artificial intelligence (AI) as a pivotal tool for enhancing the efficiency of personalized foreign language learning within the context of postgraduate education. The study conceptualizes personalization as a progressive pedagogical strategy grounded in andragogy and subject–subject interaction, enabling adult learners to actively design their individual educational trajectories.*

Keywords: *artificial intelligence, postgraduate education, personalization as a strategy, foreign language.*

Personalization represents the most advanced and progressive level to organize the educational process. It is also one of the priority directions in modernizing educational sphere. In contemporary academic discourse, it is conceptualized as a pedagogical strategy grounded in subject–subject interaction which ensures the active participation of adult learners (andragogy) and participants in professional development programmes in designing their own educational paths. This presupposes the possibility to select individually the content, methods, forms and pace of learning in accordance with the professional needs and personal goals of each participant in the educational process [1; 2; 3].

In this context, digital technologies, particularly artificial intelligence (AI), serve as a powerful catalyst for personalized learning, providing opportunities to adapt educational trajectories to the individual needs and capabilities of professionals undergoing advanced training. The use of such technologies opens new prospects for effective development of professional foreign-language communicative competence (FLCC).

The theory of personalized learning in postgraduate education is based on the synergy of several methodological approaches, each of them ensures different aspects of competency development among adult learners. This integrated approach enables the combination of professional, communicative and digital skills while considering individuals' needs, motivation and prior experience.

1. *Competency-Based Approach*. Personalization aims to develop the learner's individual competencies in accordance with their professional demands. In the

context of foreign-language learning among adults, this approach focuses on forming professionally oriented linguistic competence necessary to perform specific occupational tasks such as conducting negotiations, preparing technical documentation or engaging in cross-cultural communication.

2. *Learner-Centered (Personality-Oriented) Approach.* This approach emphasizes the learner's psychological uniqueness, learning style, level of self-regulation, motivational profile and prior experience. In adult professional development, motivation is predominantly intrinsic as it is directly associated with career advancement, increased professional mobility and personal and professional growth.

A learner-centered approach to language learning implies creating conditions under which the learner can choose the most comfortable forms and pace of study, focusing on individually meaningful linguistic goals. It ensures flexibility, strengthens intrinsic motivation and supports more effective acquisition of foreign-language competencies.

3. *Andragogical Approach.* This approach is fundamental for postgraduate education as it accounts for socio-pedagogical and professional characteristics specific to adult learning. Participants in the educational process act as active subjects who consciously determine learning objectives and take responsibility for their own results.

The andragogical approach creates conditions under which learning is perceived as a pathway to career development, increased social status and enhancement of professional competence. It implements the principle of conscious partnership, structuring the learning process around solving real professional tasks while relying on the learner's prior experience and internal motivation for self-improvement.

4. *System-Activity Approach.* This approach views learning as an active speech-related activity rather than passive information consumption. The systemic component interprets professional development as a holistic structure where the goal, content, methods, and AI-based tools are interconnected.

The activity component underscores that mastery of a foreign language occurs exclusively through solving communicative tasks, fostering the development of practical skills. This approach integrates theoretical knowledge with practice, stimulates learner autonomy and creates conditions for efficient use of digital tools in the learning process.

5. *Integration-Digital Approach.* This approach serves as a connecting link between traditional foreign-language teaching methodology and modern digital

technologies. Within the framework of digital transformation, it presupposes not merely the use of computers as auxiliary tools but the deep integration of digital instruments into the structure and content of learning.

The integration-digital approach ensures the organic combination of professional knowledge, linguistic training and digital skills, contributing to effective personalization of the educational process. As a result, learners in professional development programmes are able to apply acquired competencies to real-world professional tasks supported by contemporary digital tools.

The synergy of these five approaches forms a holistic model of personalized adult learning, establishing conditions for the integrated development of professional, communicative and digital skills and laying the foundation for broader implementation of AI technologies in professional development.

Given the objectives of foreign-language training for adult learners, AI tools may be classified according to their functional purpose:

1. *Generative Language Models (LLMs).* State-of-the-art transformer-based neural models such as ChatGPT (OpenAI), Claude, Gemini (Google), and Microsoft Copilot. In the educational environment, they function as intelligent tutors or conversational partners capable of conducting dialogues in a foreign language, explaining grammar rules, generating domain-specific texts, checking essays and creating tests.

2. *Adaptive Learning Systems.* Platforms that automatically adjust learning pathways to individual users such as Duolingo, Knewton or Coursera (with AI-coaching elements). These systems analyse learner progress in real time and adjust content and pacing accordingly, thereby implementing the principle of personalization.

3. *Translation and Writing Support Tools.* Services such as DeepL, Google Translate, Grammarly and LanguageTool assist in text generation and editing, style analysis and error correction, skills that are especially important in professional communication.

4. *Speech Recognition and Speech Synthesis Technologies (ASR & TTS).* Speech-to-Text and Text-to-Speech systems (e.g., Otter.ai, Siri, Google Assistant, ELSA Speak) provide opportunities to train listening and speaking skills without teacher involvement. Tools like ELSA Speak can analyse pronunciation at the phoneme level and provide detailed feedback regarding accent and intonation.

Analysis of AI tools demonstrates that the contemporary AI market offers a wide variety of technologies suitable for educational use [5]. This list is not exhaustive as it is continuously expanding due to the rapid development of

Generative AI. The key feature of these technologies is the shift from static content to dynamic interaction, enabling the genuine implementation of personalized learning.

For professional development, three AI-based models of interaction with learners are considered the most effective in forming FLCC:

1. *AI-Tutor Model (Drilling & Instruction).* AI manages the learning process, addressing gaps in linguistic competence. For example, it generates individual tests or provides grammar explanations tailored to the professional context.

2. *AI-Conversational Partner Model (Simulation & Roleplay).* AI functions as an equal interlocutor, simulating real-life communicative situations. This model supports the development of sociocultural and pragmatic competence such as practising negotiation scenarios in a specified style and tone.

3. *AI-Copilot Model (Co-creation & Scaffolding).* AI serves as an assistant in performing real professional tasks, for instance, drafting business correspondence or reports and offering stylistic improvements. This model enhances professional competence within ESP.

The integration of generative LLMs (for communication practice and content explanation) with specialized NLP tools (for pronunciation and writing training) creates a comprehensive digital learning environment grounded in andragogical and system-activity principles, ensuring effective personalization of the professional development process.

Conclusions. Personalized learning for adult participants in professional development programmes is grounded in the integration of competency-based, learner-centered, andragogical, system-activity and integration-digital approaches. The synergy of these approaches ensures holistic development of professional, communicative, and digital competencies while taking into account learners' individual needs, prior experience, and motivation.

The use of AI technologies opens new opportunities to personalize the learning process effectively. Generative language models, adaptive platforms, translation and writing-support tools, as well as speech recognition and synthesis systems, create a comprehensive digital environment in which learners can implement their own educational trajectories, apply knowledge in practice and develop professional skills.

The application of AI language models in the roles of "Tutor," "Conversational Partner," and "Copilot" allows the learning process to be adapted to specific communicative and professional tasks, thereby increasing the efficiency of foreign-language competence acquisition.

Thus, the combination of methodological approaches and digital technologies ensures a flexible, comprehensive and individually oriented system of professional development.

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