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**ГЕНЕРАТИВНИЙ ШТУЧНИЙ ІНТЕЛЕКТ ЯК ІНСТРУМЕНТ ДИФЕРЕНЦІАЦІЇ НАВЧАННЯ
АНГЛІЙСЬКОЇ МОВИ СТУДЕНТІВ ЗАКЛАДІВ ВИЩОЇ ОСВІТИ: АДАПТАЦІЯ ЗАВДАНЬ ДО
РІВНІВ CEFR A2–B2**

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Анотація. У статті обґрунтовано педагогічний потенціал генеративного штучного інтелекту (GenAI) як інструменту диференційованого навчання англійської мови у закладах вищої освіти. Актуальність дослідження зумовлена неоднорідністю рівнів мовної підготовки студентів, потребою адаптувати навчальні матеріали до індивідуальних освітніх потреб і стрімким поширенням генеративних моделей у цифровому освітньому середовищі. На відміну від підходів, що розглядають штучний інтелект передусім як засіб автоматичного створення текстів або перекладу, у дослідженні GenAI концептуалізовано як педагогічний інструмент керованої адаптації навчальних завдань до рівнів A2, B1 і B2 відповідно до Загальноєвропейських рекомендацій з мовної освіти (CEFR). Методологічну основу становлять принципи диференційованого й персоналізованого навчання, компетентнісний підхід, дескриптори CEFR, завданнево-орієнтоване навчання мови (task-based language teaching) та сучасні дослідження GenAI у мовній освіті. Застосовано аналіз, синтез, порівняння, систематизацію й узагальнення наукових джерел, педагогічне моделювання та контент-аналіз прикладів завдань із підтримкою штучного інтелекту. Основним результатом є авторська модель диференціації з підтримкою штучного інтелекту, що охоплює діагностику рівня студента, визначення навчальної мети, конструювання промпту, адаптацію лексики, граматики, обсягу завдання та когнітивної складності, виконання завдання студентом, зворотний зв'язок за підтримки штучного інтелекту, перевірку викладачем і рефлексію. Аналіз засвідчив, що GenAI найдоцільніше застосовувати тоді, коли він підтримує, а не заміщує викладача: допомагає готувати різноманітні матеріали, забезпечує скафолдинг, варіює інструкції, моделює ситуації професійної комунікації та підтримує формувальний зворотний зв'язок. Визначено

ключові умови ефективної інтеграції GenAI: чітко сформульовані результати навчання, відповідність CEFR, поступове ускладнення, III- та цифрова грамотність викладачів і студентів, обов'язкова перевірка згенерованих матеріалів, академічна доброчесність і захист даних. Науковий внесок полягає в поєднанні диференційованого навчання, конструювання завдань з орієнтацією на CEFR і генеративного штучного інтелекту в єдиній педагогічній моделі. Практичне значення дослідження пов'язане з можливістю застосовувати модель у курсах англійської мови для студентів нефілологічних спеціальностей, зокрема англійської мови для професійних цілей (ESP), у навчанні на платформі Moodle та в інших цифрових середовищах.

Ключові слова: генеративний штучний інтелект, ChatGPT, диференційоване навчання, персоналізація, англійська мова, CEFR, цифровізація, вища освіта, англійська мова для професійних цілей, адаптація завдань.

GENERATIVE ARTIFICIAL INTELLIGENCE AS A TOOL FOR DIFFERENTIATED ENGLISH LANGUAGE LEARNING IN HIGHER EDUCATION: TASK ADAPTATION ACCORDING TO CEFR A2–B2 LEVELS

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Abstract. The article substantiates the pedagogical potential of generative artificial intelligence (GenAI) as a tool for differentiated English language learning in higher education. The relevance of the study is determined by the heterogeneity of students' language proficiency, the need to adapt instructional materials to individual learning needs, and the rapid expansion of generative models in digital educational environments. Rather than treating artificial intelligence primarily as a tool for automatic text generation or translation, the study conceptualizes GenAI as a pedagogical instrument for controlled adaptation of learning tasks to A2, B1, and B2 proficiency levels according to the Common European Framework of Reference for Languages (CEFR). The methodological framework combines principles of differentiated and personalized learning, the competence-based approach, CEFR descriptors, task-based language teaching, and recent research on GenAI in language education. The study applies analysis, synthesis, comparison, systematization and generalization of scholarly sources, pedagogical modelling, and content analysis of examples of AI-supported tasks. The main result is an author-developed AI-supported differentiation model comprising learner-level diagnosis, definition of the learning objective, prompt design, adaptation of vocabulary, grammar, task length and cognitive complexity, student performance, AI-supported feedback,

teacher verification, and reflection. The analysis demonstrates that GenAI is most pedagogically appropriate when it supports rather than replaces the teacher: it can facilitate the preparation of multi-level materials, provide scaffolding, vary instructions, model professional communication situations, and support formative feedback. The study identifies key conditions for effective GenAI integration: clearly defined learning outcomes, alignment with CEFR, gradual increase in complexity, AI and digital literacy of teachers and students, mandatory verification of AI-generated output, academic integrity, and data protection. The scholarly contribution lies in integrating differentiated instruction, CEFR-oriented task design, and generative AI within a single pedagogical model. The practical value of the study is associated with the possibility of applying the model in English language courses for non-linguistic majors, including English for Specific Purposes (ESP), Moodle-based learning, and other digital environments.

Keywords: *generative artificial intelligence, ChatGPT, differentiated learning, personalization, English language, CEFR, digitalization, higher education, English for Specific Purposes, task adaptation.*

1. INTRODUCTION

Relevance of the problem. Digitalization of higher education is changing not only the means of transmitting educational information but also the logic of educational process design. One of the most visible factors in these changes is the spread of generative artificial intelligence (GenAI), which can create, reformulate, explain, and adapt language material in dialogue mode.

Analysis of recent research and publications. Recent research reviews demonstrate a rapid increase in empirical studies of GenAI in language education, with higher education and English language learning among the dominant research contexts [1; 2; 3]. At the same time, the technological accessibility of GenAI does not automatically imply pedagogical effectiveness. The quality of the output depends on the formulation of the learning task, the ability to construct an appropriate prompt, the verification of generated material, and its alignment with the educational objective. Studies of ChatGPT use in English language learning demonstrate its potential for feedback, writing, motivation, and learning interaction, while also identifying risks of overreliance, cognitive overload, content errors, and academic misconduct [4; 5; 6].

Identification of the unresolved part of the problem. A separate challenge is the heterogeneity of language proficiency among students in non-linguistic majors. Students in the same course may demonstrate proficiency ranging from A2 to B2; therefore, an identical task does not ensure the same level of accessibility or an appropriate degree of learning challenge for everyone. Differentiation involves variation in content, process, level of support, and expected outcome. In a digital environment, GenAI can substantially reduce the time required to prepare such variants, but only under pedagogical control.

Thus, the research problem is not whether GenAI should be used in English language classes, but how it can be integrated into a pedagogical model so that technology supports differentiation, personalization, and language competence development rather than replacing students' independent activity.

Purpose of the article. The purpose of the article is to provide a theoretical rationale and pedagogical model for using generative artificial intelligence as a tool for differentiated English language learning among higher education students by adapting tasks according to CEFR A2–B2 levels.

To achieve this purpose, the following objectives were defined:

- to analyze current approaches to using GenAI in English language teaching in higher education;
- to identify the possibilities of GenAI for differentiating language tasks according to CEFR A2–B2 levels;
- to develop a model of AI-supported adaptation of learning tasks;

- to determine pedagogical conditions for effective and ethical use of GenAI;
- to outline directions for further empirical verification of the proposed model.

The object of the study is the process of teaching English to higher education students in conditions of digitalization.

The subject of the study is the pedagogical potential and conditions of using generative artificial intelligence for differentiation and adaptation of English language learning tasks according to CEFR A2–B2 levels.

Research questions:

RQ1. How can GenAI be integrated into the differentiation of English language tasks according to CEFR A2–B2?

RQ2. Which components of a task can be effectively adapted with the support of GenAI?

RQ3. What pedagogical and ethical conditions are necessary for effective application of GenAI in differentiated learning?

Scientific novelty. The scientific novelty of the study lies in integrating differentiated instruction, CEFR-oriented task design, and generative AI within a single pedagogical model of task adaptation for A2–B2 levels, in which the final decision on the task remains with the teacher.

Practical significance. The model can be applied in English language courses for non-linguistic majors, including English for Specific Purposes (ESP), Moodle-based learning, and other digital environments, where a teacher needs several versions of one task for students with different proficiency levels.

2. RESEARCH METHODOLOGY

Research methods. The study applies analysis, synthesis, comparison, systematization and generalization of scholarly sources, pedagogical modelling, and content analysis of examples of AI-supported tasks.

Data sources. The source base comprises peer-reviewed publications on GenAI in language education and in English language teaching in higher education, including systematic reviews and a meta-analysis, as well as CEFR descriptors for the A2, B1, and B2 levels.

Analysis tools. Comparative tables of task parameters by proficiency level and by type of language activity, together with an example of a structured pedagogical prompt, were used as the main instruments of modelling (Tables 1, 2).

Research limitations. The study is theoretical and does not include experimental data on student performance. The effectiveness of the proposed model therefore requires empirical verification.

2.1. Research design and logic

The study has a theoretical and modelling character and does not claim to present new experimental results concerning the performance of a particular group of students. This design was chosen deliberately because the original manuscript contained data on digital gamification rather than an experiment with GenAI. To avoid fabrication or falsification of results, empirical indicators from the previous version were not transferred to the new topic. Instead, the results are presented as an author-developed pedagogical model based on an analysis of contemporary research and CEFR principles.

The methodology combines systematization of contemporary scholarly works on GenAI in language education, analysis of the pedagogical potential of generative models, comparison of AI-supported functions at different levels of language competence, and modelling of differentiated tasks. This approach corresponds to the current state of the field, where a substantial part of research focuses on perceptions of GenAI, writing, and feedback, whereas personalized and behavior-oriented applications require further development [1; 3].

2.2. Theoretical foundations

The first foundation is differentiated instruction, in which the learning objective remains stable while the complexity of language material, amount of support, type of instruction, pace,

and form of the outcome may vary. The second is personalization, which involves considering the learner's current level, professional interests, and learning needs. The third is the CEFR as a common framework for describing language competence. In this article, A2, B1, and B2 are used as operational reference points for task construction rather than rigid boundaries of an individual learner's abilities.

The fourth foundation is task-based language teaching. A systematic review and meta-analysis conducted in 2025–2026 indicates the positive potential of GenAI for language learning while emphasizing the role of AI literacy, task planning, and assessment in the effectiveness of AI-supported learning [7]. Therefore, GenAI should be embedded in a pedagogical scenario rather than used as an isolated digital service.

2.3. Stages of AI-supported differentiation

An eight-stage sequence is proposed:

- diagnosis of the student's level and identification of the learning need;
- formulation of a specific language learning outcome;
- determination of differentiation parameters;
- preparation of a structured prompt for GenAI;
- generation and preliminary selection of adapted material;
- student completion of the task;
- combination of AI-supported feedback with teacher assessment;
- reflection and adjustment of the next level of complexity.

The key principle is "teacher-in-the-loop": the final decision concerning the alignment of a task with the learner's level and learning objective is made by the teacher. This is particularly important because GenAI may produce factual, linguistic, or stylistic errors and may either oversimplify or unnecessarily complicate material.

3. RESULTS

3.1. Author-developed model of AI-supported differentiation

The result of theoretical modelling is a three-level model of task adaptation for A2–B2. It assumes that the basic communicative situation and learning objective may remain common, while linguistic and cognitive parameters of the task are changed according to proficiency level.

Table 1. Parameters of AI-supported task adaptation according to CEFR A2–B2 levels

Parameter	A2	B1	B2	GenAI function
Vocabulary	Frequent, concrete	Common + broader professional vocabulary	Professional, abstract vocabulary	Simplification/complication of vocabulary
Grammar	Basic structures	Combination of main tenses and modal constructions	Complex sentences, conditionals, passive constructions	Adaptation of grammatical complexity
Text	Short, 100–150 words	Medium, 180–250 words	Extended, 250–400 words	Change of length and information density
Scaffolding	Glossary, model answer	Partial prompts	Minimal prompts	Generation of scaffolding
Product	Short utterances/paragraph	Structured text/dialogue	Argumentative oral/written product	Variation of practice formats
Cognitive action	identify, match, describe	explain, compare, summarize	evaluate, justify, argue	Increase in cognitive operation level

3.2. Example of adaptation of a professional task

Basic topic: “Cybersecurity and Password Safety”. The common learning objective is that the student explains the principles of safe password use in English. For A2, GenAI can generate a short text with frequent vocabulary, a list of key words, and a matching exercise. For B1, it can generate an informational text with professional vocabulary, a task requiring explanation of causes and consequences, and a short written message. For B2, it can generate a case involving a violation of a password policy, a task for risk evaluation, argumentation, and recommendations for a team.

Example pedagogical prompt: “Create three versions of an English learning task on password safety for university students at CEFR A2, B1 and B2. Keep the communicative goal identical. Adapt vocabulary, grammar, text length, cognitive demand and scaffolding. Do not introduce information that is not included in the source material. Provide an answer key and identify language items that require teacher verification.”

Such a prompt is only an instrument for material preparation. Its output must be checked by the teacher for CEFR alignment, accuracy of professional information, naturalness of English, and compliance with the curriculum.

3.3. Differentiation by language activity

Table 2. Differentiation of tasks by type of language activity

Activity	A2	B1	B2
Reading	Short text + matching	Text + comprehension + summary	Analytical text + critical questions
Writing	5–7 sentences using a model	Structured paragraph/email	Argumentative response/report
Speaking	Role-play dialogue model	Problem-solving dialogue	Debate, presentation, professional discussion
Listening	Short utterances with support	Dialogue/interview + notes	More authentic material + inference

3.4. Pedagogical conditions for effectiveness

- alignment of AI adaptation with a specific learning outcome;
- use of CEFR as a reference for complexity rather than an automatic diagnostic algorithm;
- mandatory teacher verification of AI-generated material;
- gradual development of students’ AI literacy, including skills for critical evaluation of responses;
- prohibition of using GenAI as a substitute for independent work where students’ own language production is being assessed;
- transparent declaration of AI use in accordance with academic integrity policies;
- minimization of the transfer of personal and confidential data to external AI services.

4. DISCUSSION

Interpretation of results. The model shows that GenAI is pedagogically appropriate in differentiated learning when it works at the level of micro-adaptation of a task and does not replace the teacher. The learning outcome remains common for the group, while vocabulary, grammar, text length, scaffolding, and the cognitive operation change according to the proficiency level.

Comparison with other studies. The resulting model is consistent with trends in contemporary research on GenAI in language education. A systematic review of 144 empirical studies showed that research in 2023–2024 shifted from predominantly exploratory inquiries toward more systematic and empirically driven investigation of language skills, learning

processes, and GenAI integration [14]. A review of 49 empirical classroom-based studies likewise demonstrated the dominance of higher education and English language learning, while identifying a need for more behavioral research and customized applications for personalized learning [7].

Mahapatra's findings [12] confirm the potential of ChatGPT for supporting students' academic writing, whereas Woo et al. [15] showed that AI-supported writing can be motivating and satisfactory for students but may also create substantial cognitive load, particularly when they are learning to work effectively with prompts. This means that the presence of GenAI alone does not guarantee differentiation: students need clear rules, prompt templates, and training in critical verification of outputs.

The meta-analysis by Li, Shadiev, and Chiu [10] is particularly relevant to the proposed model because it demonstrates a positive effect of GenAI on language learning and identifies AI literacy, task planning, and the evaluator's role as moderators of effectiveness. Therefore, the proposed teacher-in-the-loop principle is not a technical limitation but a pedagogical quality condition.

The systematic review by Wang et al. [13] and the classroom-focused review by Lee et al. [7] confirm the need to move from the question "whether to use AI" to the question "how to pedagogically design its use." For differentiated learning, this means that AI should operate at the level of micro-adaptation: changing vocabulary, grammar, length, number of prompts, and cognitive operation while maintaining a common learning outcome.

At the same time, the model has limitations. First, CEFR cannot be reduced completely to automatic determination of text difficulty because language competence is multidimensional. Second, the quality of AI output depends on the model, prompt, and context. Third, differentiation may turn into excessive simplification for weaker students or into a technically complex system for teachers. Therefore, an empirical study should compare control and experimental groups, pre-test/post-test results, motivation, language outcomes, and the quality of students' work.

Thus, the proposed model does not replace the existing pedagogical logic of differentiation but expands it with a digital instrument. Its principal distinction from a purely technological approach is the preservation of pedagogical control, a common learning objective, and transparent assessment criteria.

Scientific novelty (extended). In contrast to approaches that treat GenAI mainly as a means of text generation or translation, the proposed model links CEFR-oriented task design, differentiated instruction, and the teacher-in-the-loop principle within one sequence of stages, from level diagnosis to reflection.

Practical significance (extended). The level parameters (Table 1), the differentiation of language activities (Table 2), and the example prompt can be used by teachers of English for non-linguistic majors, in particular in ESP courses and Moodle-based learning, to prepare multi-level versions of one task without changing the common learning objective.

5. CONCLUSIONS

The article substantiates the feasibility of using generative artificial intelligence as a tool for differentiated English language learning among higher education students. Analysis of contemporary research shows that GenAI has considerable potential for supporting language learning, including the generation and adaptation of materials, formative feedback, writing, and personalized interaction. At the same time, the effectiveness of the technology is determined not by the tool itself but by the pedagogical design of its application.

An AI-supported differentiation model based on CEFR A2–B2 levels has been developed. It includes level diagnosis, definition of the learning objective, adaptation of vocabulary, grammar, length, cognitive complexity, and scaffolding, task performance, AI-supported feedback, teacher verification, and reflection. A practical outcome is the possibility of

maintaining a common communicative goal for a group while creating different pathways for achieving it.

Further research should empirically test the model with students from different majors and CEFR levels. A quasi-experimental study with pre-test/post-test measurements, comparison of control and experimental groups, analysis of motivation, language outcomes, writing and speaking quality, and AI literacy would be appropriate. A separate research direction is the study of long-term effects of personalized AI support and its influence on student autonomy.

The proposed model requires further empirical validation before causal claims about learning gains can be made. Future experimental or quasi-experimental research should therefore report transparently collected data and clearly specified assessment procedures.

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