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THE USE OF AI TECHNOLOGIES TO ADAPT DIDACTIC MATERIALS IN TEACHING A FOREIGN LANGUAGE

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Abstract. The article investigates how intelligent digital tools help future English language teachers prepare their educational materials through theoretical and practical assessments. The research holds importance because education continues to digitalize while teachers need better training methods for teaching students with different learning needs.

The research aims the proposed material adaptation method through empirical testing to measure its impact on task modification quality and student learning content understanding and achievement results. The research examines digital educational environments through theoretical adaptation analysis and educational material transformation parameter identification and intelligent digital tool assessment for support.

The research establishes digital educational environment adaptation definitions and demonstrates its role in enhancing teaching effectiveness through scientific methods. The research presents how AI technology can improve educational content and teaching methods for teacher education programs.

The methodology combines scholarly review with student proficiency testing followed by a 15-week teaching experiment and experimental and control group comparison and expert assessment of modified assignments.

The research's result shows that AI-based adaptation methods lead to better CEFR descriptor alignment and lower student mental effort while making content more organized and tasks more effective.

The research adds value to educational practice through its development of methodological principles for material adaptation and its proof of intelligent digital tools for teacher education of future foreign language instructors.

Keywords: intelligent digital tools, material adaptation, teacher education, AI-based methodologies, digital educational environments, empirical testing, CEFR alignment, learning outcomes

Introduction

The higher education system in Kazakhstan operates through digital transformation which modifies educational content and teaching methods and learning technologies. The development of higher education and science

received its foundation from three essential regulatory documents which include The Regulation "Approving the Concept of Development of Higher Education and Science for 2023-2029" No. 248 (March 28, 2023) [1] and The Regulation "Approving the Concept of Development of Artificial Intelligence for 2024-2029" No. 592 (July 24, 2024) [2] and the President's message "The third Modernization of Kazakhstan: Global Competitiveness" (January 31, 2017) [3] which demands a new educational framework that delivers contemporary skills and knowledge. The documents direct the higher education system to build adaptable learning systems which understand student differences and develop skilled workers for competition.

The execution of personalized education methods at universities encounters multiple significant obstacles. The combination of large student numbers and insufficient teaching time and varying student abilities and insufficient adaptive resources and insufficient customization tools makes it difficult to create enduring individual learning paths which negatively impacts students' professional and academic skill development.

Research about personalization exists throughout foreign countries and within Russian and Kazakh educational fields. B. Bloom established the foundation for international research through his work on mastery learning which included student material access customization. C. Dede established personalization through digital platforms which adapt to student individual needs [4, 186 p.]. D. Rose and A. Meyer demonstrated through Universal Design for Learning that information presentation variability and expression and participation options create essential learning conditions [5, 140 p.].

Russian researchers view personalization as an essential element of their personality-oriented educational approach. A.V. Khutorskoy demonstrated how to create individualized educational materials [6, 25 p.]. A. A. Verbitsky links personalization to contextual learning organization which bases student work experience [7, 93 p.].

Kazakh pedagogy primarily links personalization to the specific requirements of bilingual education and diverse student groups. K K. Kussainova defines personalized learning as an educational system which adjusts its approach based on student performance levels and their linguistic and cultural backgrounds [8, 45 p.]. N. Abdrakhmanova demonstrates that foreign language teaching requires personalized approaches through student level differentiation [9, 62 p.].

A learning organization that implements personalization uses multiple methods to adjust content and teaching approaches and assessment methods and learning pace based on student individual characteristics including their knowledge level and perception style and interests and career objectives.

The process of learning foreign languages requires special attention to personalization methods. Student individual characteristics play a major role in

developing their ability to learn new information. The international frameworks CEFR, Pearson GSE and Cambridge establish specific requirements for text complexity and task communicative direction and exercise organization [10]. The current educational materials fail to match student abilities and learning needs which results in decreased student interest and excessive workload.

The process of modifying educational materials stands as a vital customization instrument for teaching. Foreign Language Learning defines adaptation as the process of transforming educational content to match student abilities and cognitive needs and communicative requirements (J. C. Richards, B. Tomlinson, I. McGrath) [11-13]. Russian authors define adaptation as the process of modifying tasks based on student age and their cognitive and sociocultural characteristics (N. D. Galskova, I. L. Bim, G. Siemens). The Kazakh educational system defines adaptation as modifying educational content through changes in material structure and volume and linguistic complexity to support multilingual and multilevel learning environments (Zh. Kussainova, N. Abdrakhmanova) [8-9]. The process enables teachers to create materials that suit all student needs while preserving consistent educational standards.

The solution process continues to face multiple unresolved problems. The development of adaptation algorithms together with quality standards for adapted materials and CEFR tool adaptation methods will enable scientists to measure the success of these solutions objectively [14].

Artificial intelligence technologies bring forward fresh possibilities for educational development. The development plan for Artificial Intelligence from 2024 to 2029 establishes AI as a fundamental educational tool for modernizing teaching methods [2]. The system uses automated methods to evaluate text complexity and detect challenging language sections while producing material versions at different levels and searching for content and building personalized assignments and connecting exercises to CEFR references and forecasting student mistakes and generating customized learning routes from data [15, 112 p.]. The system decreases teacher work while producing more accurate and adaptable material adaptations.

The scientific community recognizes research about teaching material adaptation through AI technology as a vital academic and practical challenge. The development of purposeful algorithmic procedures will enhance learning content accessibility while making it conform to international standards and establish conditions for students to build enduring personalized language abilities.

Materials and methods

The research materials and methods followed the sequence of tasks which the “Introduction” section described. The research design used scientific methods to study how teaching materials adapt to student needs through digital technology

implementation in foreign language education. The research used J.C. Richards' definition of content adaptation which involves specific processing for student needs and levels [11, 132 p.] and B. Tomlinson's teaching material development approach which stresses authenticity and communicative alignment [12, 224 p.] and I. McGrath's definition of adaptation as complexity management and cognitive load reduction [13, 113 p.].

The Kazakh studies field defines adaptation through its method of uniting educational content with multiple bilingual education objectives (Zh. Kussainova and N. Abdrakhmanova and others).

The authors support this perspective which views teaching material adaptation as a scientific method to transform educational content and delivery methods and structures. The main objective of this process involves achieving equilibrium between educational content and student learning abilities and their educational requirements and digital learning environment needs. The research methodology followed this adaptation definition to develop an empirical assessment method for evaluating the proposed solutions.

The experimental section spanned 15 weeks of a semester at the Abilai Khan University of International Relations and International Languages of Kazakhstan. The research included 64 third-year students who studied "Modern methods and technologies of foreign language education at the secondary school level". The students demonstrated English language proficiency between A2 and B1 levels.

The students participated in two separate groups to evaluate which adaptation techniques worked best. The experimental group received assistance from artificial intelligence tools to adapt their materials but the control group used conventional digital assets without artificial intelligence algorithms. The teacher who taught both groups maintained equal teaching conditions while preventing pedagogical practice variations from affecting the results.

The experiment became necessary to prove how well the proposed adaptation model works when teaching future English teachers. The teacher's role in transforming study materials into school practice made student participation from the Pedagogical Direction possible to evaluate adaptation levels and identify common challenges and assess material preparation quality.

The original task content derived from official English school teaching materials which the Ministry of Education of Kazakhstan recommends for grades 5 to 9 including "English File", "Solutions", "Against the World" and "Eyes open". The selection of materials stems from the need for future teachers to master these resources through appropriate student-level adjustments. The housing contained activities which developed vocabulary and grammar and reading and listening and writing skills to create authentic methodological training conditions.

The language assessment took place before students began their adaptation work. The assessment consisted of CEFR scale input tests and mini-written work analysis and error identification. The method follows M. Sharples' student needs assessment principles [15, 65 p.] to establish precise student starting points. The diagnostic results revealed which elements required adaptation through their assessment of lexical complexity and textual structural density and instruction clarity and gender sensitivity and communicative extent.

The adaptation process employed artificial intelligence technology for its execution. The language models ChatGPT-4/5, Claude 3 Opus, DeepSeek R1, Gemini Advanced, Microsoft Copilot were used together with specialized services including repropose (vocabulary simplification) and Text Inspector (complexity analysis) and CEFR control (level definition) and Lengoo AI (formulation adaptation). The tools enabled users to modify text difficulty levels and exercise structures and instructions and material amounts and generate different skill levels for each assignment. The method follows G. Siemens' recommendation about digital analysis for adaptive learning [14, 56 p.] and M. Sharples' explanation about AI-based learning pathway personalization [15, 67 p.].

To diversify the material, we used broad AI tools alongside niche ones - chosen based on learning goals and project aims. Throughout the process, each AI performed their uniqueness, depending on the type of work and the situation. Instead of swapping them freely, their duties stayed clear and matched the evolving work.

Using ChatGPT - specifically versions 4 and 5 - mainly shaped how lessons were rewritten, how activities were rearranged, and how new versions at varying CEFR skill levels were created. The reason for choosing it lay in its ability to hold onto what the message truly means, even when words or structures changed or when the overall assignment shape shifted.

Claude 3 Opus helped to rewrite the lengthy texts, keep meaning clear and writing smooth, especially when readings got long. It worked better at staying true to how ideas flowed during changes in text structure. Reliability showed up more clearly while shaping complex written output.

Gemini Advanced demonstrated the advantages of how it handled word choices and rephrasing, particularly when building vocabulary tasks. Its strength lay in offering several alternative words without losing meaning in context. That specific trait - generating varied options while staying accurate - was why it was chosen.

At the analytical level, DeepSeek R1 detected tricky sentence structures and mentally demanding chunks. Instead of creating output, it served to assess and classify. Its role leaned toward evaluation, not content generation.

Besides broad language systems, dedicated AI tools helped shape the work. Tools like Text Inspector and CEFR Checker analyzed word choice, sentence

length, and match to common learning stages, ensuring clear and fair skill judgments. Vocabulary got easier through Rewordify's processing. Clarity in framing tasks came partly from Lengoo AI's adjustments. As a result, we see their fit to what teachers do when adapting lessons. Then there is how easily students and trainers actually use them. Last came whether each aligns well with how language skills vary at different CEFR levels.

Looking at *Table 1* shows how AI tools are used across various purposes and steps in adapting materials. It turns out people leaned on big language systems alongside niche AI platforms, each handling distinct teaching goals like matching language levels, reducing word complexity, rephrasing assignments, and reviewing outputs.

Table 1. Functional differentiation of AI tools used in the study

AI tool	*Primary function*	*Stage of adaptation*	*Reason for selection*
ChatGPT	Task reformulation, level adaptation	Text transformation	CEFR-sensitive output, communicative focus
Claude 3 Opus	Coherence and discourse control	Quality assurance	Logical consistency
Gemini Advanced	Lexical variation	Vocabulary adaptation	Contextual accuracy
DeepSeek R1	Structural analysis	Diagnostic stage	Detection of syntactic overload
Text Inspector	Complexity analysis	Level identification	Objective CEFR alignment
CEFR Checker	Level verification	Quality control	Standard-based assessment
Rewordify	Vocabulary simplification	Lexical adaptation	Cognitive load reduction
Lengoo AI	Instruction reformulation	Task clarity	Instructional transparency

The three adaptation levels for each task included basic and two additional versions at different difficulty levels. The simplified version of the task involved adding glosses to key terms and using uncommon words and shortening the text content. The fundamental objective of the task remained intact while removing all additional challenging elements. The extended version added complexity to the material while raising the level of required communication. The format follows established international standards for curriculum differentiation [2; 3].

The training program included adapted materials at its conclusion. Students completed both original and modified assignments to determine how content adaptation affected their understanding and their ability to complete tasks and their perception of task organization. The research employed formative assessment elements from Rose and Meyer [5] which included student self-assessment and peer assessment and error identification. The expert evaluation of quality followed CEFR standards while assessing both cognitive load and methodological accuracy.

The research system consists of complete elements which start with scientific literature evaluation followed by teaching material selection and student level diagnosis and AI-based content adaptation and pedagogical evaluation of received tasks. The methodological framework enables researchers to evaluate artificial intelligence potential for teaching material adaptation for English teacher education through objective assessment.

Results and discussion

The research analysis used existing materials and methodological procedures to study how artificial intelligence impacts task quality and student exercise success. The experiment consisted of multiple sequential phases which started with CEFR scale diagnosis followed by self-material adaptation and task completion and final observation. The researchers analyzed all data points to identify experimental and control group variations.

The Results section demonstrates quantitative and qualitative data obtained during the 15-week teaching experiment. The research spanned one academic term with 64 third-year students who possessed English abilities at A2-B1 levels. The research participants received equal distribution between two separate groups. The Experimental team used artificial intelligence tools to adapt materials while the control group used manual adaptation methods. The teacher who led both groups maintained consistent teaching methods which prevented teaching style variations from affecting student results.

The research team examined the effectiveness of teaching material transformation as their first analysis point. The experimental group showed better success rates in word processing tasks from the beginning of the study. The experimental group students achieved better results through their ability to reduce cognitive load while keeping their learning targets and following CEFR descriptors and maintaining task structure. The control group students demonstrated common manual adaptation problems which included task simplification and instruction logic breakdown and loss of essential content and failure to meet target level requirements.

To record the differences, a *Table 2* was created, which reflects the basic parameters of the quality of adaptation.

Table 2. Quality of materials adaptation in two groups

Indicator	*Experimental group*	*Control group*
CEFR compliance	87%	63%
Cognitive load reduction	82%	58%
Structural clarity of the assignment	90%	67%
Maintaining a learning goal	84%	61%

Looking at *Table 2*, the test group showed better results in every area checked. These include adherence to CEFR rules, lower mental effort, clearer task organization, and keeping learning goals intact.

What helped the experimental group meet CEFR standards more effectively was having AI-based tools check language levels and analyze sentence complexity automatically. Instead of relying on guesswork, educators used resources like Text Inspector and CEFR Checker to see grammar and vocabulary structure clearly. This precision lowered mistakes that often arise when adjusting lessons by hand.

The fact that artificial intelligence broke long texts into smaller parts using simpler words helped to reduce students' mental efforts. When complex sections were spotted and reworked, learners found space to think about learning goals instead of wrestling with sentences.

As a result, AI helped shape instructions more precisely. Tools like language models rearranged sentences, removed confusion, while matching what learners needed to do with what each assignment truly aimed to teach.

The identified differences require explanation through an analysis of student work algorithms with materials. The research team created *Table 3* to demonstrate the AI-based material adaptation process sequence. The Scheme demonstrates how the experimental group achieved their advantages during specific stages of the process.

Table 3. Algorithm for adapting educational materials using AI technologies

Stage	*Stage Content*	*Tools / Notes*
1. Analysis of the source material	Definition of the educational purpose, genre of the text, structure, level of informativeness and potential difficulties.	The student's analytical work.
2. Determining the CEFR level	Automatic analysis of lexical frequency, syntactic complexity, and compliance with level descriptors.	CEFR Checker, Text Inspector.
3. Choosing an adaptation strategy	Definition of the type of transformation: simplification, structuring, glossing, changing the assignment format.	Methodical choice of the student.
4. Text adaptation	Generation of adapted versions of the material: simplified, basic and advanced.	ChatGPT, Gemini, Claude, DeepSeek R1, Rewordify.
5. Quality control of adaptation	Analysis of the level correctness, transparency of the formulation of instructions, and preservation of the learning goal.	Automatic verification + expert evaluation.
6. Human editing	Correction of formulations, elimination of inaccuracies, correction of style and content.	Editorial revision by the student.
7. Implementation and analysis	The use of adapted material by students, the analysis of implementation, the identification of errors and correction of adaptation.	Educational practice + monitoring.

Table 3 shows the sequence of stages of adaptation of didactic material on the basis of AI-tools.

The following step involved evaluating how well the system identified material difficulty levels. The CEFR requires proper material leveling as its main condition so *Table 4* shows the differences between the two groups.

Table 4. Accuracy of the CEFR level classification

Group	*The proportion of correctly defined levels*	*Examples of typical errors*
Experimental	89%	Errors in the analysis of saturated structures
Control	62%	Incorrect assessment of vocabulary and syntax level

Table 4 illustrates the proportion of correctly determined CEFR levels in both (experimental and control) groups. As we see, the experimental group showed a higher level of dealing with difficult tasks.

The *Diagram 1* shows the complete workflow sequence of both groups through its visual representation. The diagram presents the complete workflow starting from diagnosis until it monitors the achieved results.

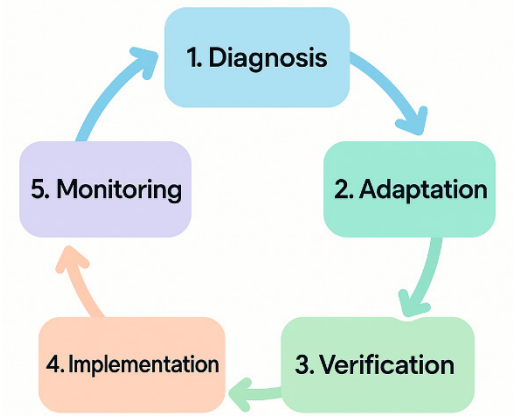

Diagram 1. The cycle of adaptation of didactic materials using artificial intelligence technologies

The experimental group showed better consistency in their adaptation cycle because they needed fewer decreases than previous phases according to *Diagram 1*. The AI system provided analytical support to students which enabled faster decision-making without taking over their work.

The final analysis focused on student success when completing learning assignments. The results from all four exercise types appear in *Table 5*.

Table 5. Success rate of tasks after adaptation

Task type	*The experimental group*	*The control group*
Reading	78%	61%
Lexical and grammatical exercises	82%	66%
Written mini-assignments	74%	59%
Interpretation of the instructions	88%	64%

According to *Table 5*, success rates of tasks were higher in the experimental group, especially for interpreting instructions and lexico-grammatical exercises.

The collected data demonstrates that artificial intelligence technologies have successfully enhanced the process of learning material adaptation. Students achieved better processing accuracy through AI assistance which also helped them perform better in practical tasks and made fewer mistakes while meeting all CEFR requirements. The results show that AI-based adaptation methods achieve high efficiency when used for training future foreign language teachers.

Looking at the results, we are able to understand that the outcomes were obtained by comparing how the adjusted versus unaltered groups responded when using AI-tailored materials.

What might explain the better CEFR performance in the test group is how they relied on artificial intelligence systems that closely inspect word counts and sentence structure. By removing human bias from review, these tech-based checks improved matching of activity level to official proficiency standards.

What stands out in the experimental group is a clear drop in mental effort - likely due to artificial intelligence spotting tricky parts of text and reshaping them on the fly. Instead of handling routine tasks by hand, students let machines manage setup work, freeing up energy for teaching choices and guidance.

What helped clarify tasks mostly came from AI adjusting how instructions were worded. With smarter layouts plus simpler phrasing, people found it easier to follow directions. This shift led to more completed jobs than before.

Looking at everything, the findings point toward AI-helped material changes fitting into a clearer, better-structured way of shaping lessons. What stands out is not just quick processing but how AI offers tools for analysis and insight. Success here comes less from automatic work, more from what the technology can reveal during planning.

Results show changes in the test group mainly come from how AI adjusts lessons. Instead of relying on guesswork, tools checked language skill levels using CEFR rules. These systems also examined sentence complexity and fixed common mistakes caused by oversimplification. Adjusting wording during rephrasing lowered errors tied to grammar shifts or missing learning goals.

Using AI helped learners choose options by real data instead of guesses, leading to sharper logic and fewer mistakes. This shift turned adjustments clearer and step-by-step, yet every educational call still sat with the student.

Conclusion

Looking at things closely, the research checked how artificial intelligence shapes the change of learning materials in training teachers of foreign languages. It turned out AI helps adjust methods better while creating more effective lessons than standard online platforms. Flexibility improved when technology adapted on

its own during lessons. What stood out was the shift from fixed plans to smarter updates every step of the way.

Findings show AI helps align content better with CEFR standards. Structure of lessons becomes clearer through automated analysis. Task complexity now more closely matches individual skill levels. Technology does not stop at editing - it aids teaching strategies too. Students receive support in both material changes and problem-solving approaches. This dual function gives educators stronger grounds for choices. Insights gained are often deeper because of the tools' role.

Still, how well AI helps adapt things hinges on solid methods plus steady human checking. Teacher judgment hasn't lost its importance - it keeps outcomes meaningful, fair, and fitting the real world. Seen this way, machine learning acts more like a helper analyzing data, not a replacement for trained insight.

Looking ahead, AI might help shape better teacher training while fitting lessons to varied student needs. A closer look at how different AI tools compare could lead somewhere useful. Methodology needs clearer rules so schools know how to use these tools without guesswork. Another path involves building local hubs for tailored teaching materials. These spots would store reworked courses over time. That kind of access may strengthen skills in digital tools among educators. Inclusion efforts may also gain ground when resources are easier to reach.

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ШЕТЕЛ ТІЛІН ОҚЫТУДА ДИДАКТИКАЛЫҚ МАТЕРИАЛДАРДЫ БЕЙІМДЕУ ҮШІН ЖАСАНДЫ ИНТЕЛЛЕКТ ТЕХНОЛОГИЯЛАРЫН ҚОЛДАНУ

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Аңдатпа. Мақалада интеллектуалды цифрлық құралдардың болашақ ағылшын тілі мұғалімдеріне оқу материалдарын әзірлеу үдерісінде қалай қолдау көрсететіні жан-жақты зерттеледі. Бұл зерттеу қазіргі білім берудің қарқынды цифрлану жағдайында ерекше маңызды, себебі түрлі оқу қажеттіліктері бар студенттерге сапалы білім беру үшін мұғалімдердің кәсіби

дайындық деңгейін арттыру қажеттілігі айқын сезілуде. Интеллектуалды құралдар оқу тапсырмаларын бейімдеуге, мазмұнды түсінікті етуге және студенттердің оқу жүктемесін оңтайландыруға мүмкіндік беретін тиімді шешімдердің бірі ретінде қарастырылады.

Зерттеудің негізгі мақсаты – ұсынылған материалдарды бейімдеу әдісін эмпирикалық тұрғыда сынақтан өткізіп, оның тапсырмаларды өзгерту сапасына, оқу мазмұнын меңгеру деңгейіне және студенттердің оқу жетістіктеріне ықпалын анықтау. Осы мақсатта цифрлық білім беру ортасының теориялық негіздері талданып, оқу материалдарын түрлендірудің негізгі параметрлері айқындалады. Сонымен бірге, осы үдерісті қолдайтын интеллектуалды цифрлық құралдардың тиімділігі сараптамалық түрде бағаланады.

Зерттеу барысында цифрлық білім беру ортасын бейімдеу түсінігі нақтыланып, оның оқыту тиімділігін арттыруға бағытталған ғылыми негіздері көрсетіледі. Жасанды интеллект технологияларының педагогтарды даярлау бағдарламаларында оқу контентін жетілдіруге, тапсырмаларды оңтайландыруға және оқыту әдістемесін жаңғыртуға мүмкіндік беретіні дәлелденеді.

Әдістеме әдебиеттерге теориялық шолу жасауды, студенттердің тілдік дайындығын анықтауды, 15 апталық педагогикалық эксперимент жүргізуді, эксперименттік және бақылау топтарының нәтижелерін салыстыруды, сондай-ақ бейімделген тапсырмаларды сараптамалық бағалауды қамтиды.

Зерттеу нәтижелері ЖИ негізіндегі бейімдеу әдістерінің CEFR дескрипторларына дәл сәйкестікті қамтамасыз ететінін, студенттердің когнитивтік жүктемесін төмендететінін және оқу материалының құрылымын біріздендіріп, тапсырмалардың тиімділігін арттыратынын көрсетеді. Жұмыс болашақ шетел тілі мұғалімдерін даярлау саласына әдістемелік негіз ұсына отырып, интеллектуалды цифрлық құралдарды қолданудың практикалық маңызын дәлелдейді.

Тірек сөздер: интеллектуалды цифрлық құралдар, материалды бейімдеу, мұғалім даярлау, ЖИ-ке негізделген әдістер, цифрлық білім беру ортасы, эмпирикалық зерттеу, CEFR сәйкестігі, оқу нәтижелері

ИСПОЛЬЗОВАНИЕ ТЕХНОЛОГИЙ ИИ ДЛЯ АДАПТАЦИИ ДИДАКТИЧЕСКИХ МАТЕРИАЛОВ В ОБУЧЕНИИ ИНОСТРАННОГО ЯЗЫКА

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Аннотация. В статье исследуется, как интеллектуальные цифровые инструменты помогают будущим учителям английского

языка подготавливать учебные материалы посредством теоретической и практической оценки. Актуальность исследования обусловлена продолжающейся цифровизацией образования и необходимостью совершенствования подготовки педагогов к работе с обучающимися, имеющими разные образовательные потребности.

Цель исследования заключается в эмпирической проверке предложенного метода адаптации материалов для оценки его влияния на качество модификации заданий, понимание учебного содержания и учебные достижения студентов. В рамках исследования анализируются цифровые образовательные среды посредством теоретического изучения процессов адаптации, идентификации параметров трансформации учебных материалов и оценки интеллектуальных цифровых инструментов, поддерживающих данный процесс.

В работе уточняются определения адаптации цифровой образовательной среды и демонстрируется её роль в повышении эффективности преподавания с опорой на научные методы. Исследование показывает, каким образом технологии искусственного интеллекта могут улучшать образовательный контент и методику обучения в программах подготовки педагогов.

Методология включает теоретический обзор, тестирование уровня подготовки студентов, 15-недельный педагогический эксперимент, сравнение экспериментальной и контрольной групп, а также экспертную оценку модифицированных заданий. Результаты исследования показывают, что методы адаптации, основанные на ИИ, обеспечивают более точное соответствие дескрипторам CEFR, снижают когнитивные затраты студентов и делают материалы более структурированными, а задания — более эффективными.

Исследование вносит вклад в образовательную практику, предлагая методологические принципы адаптации материалов и подтверждая эффективность интеллектуальных цифровых инструментов в подготовке будущих преподавателей иностранных языков.

Ключевые слова: интеллектуальные цифровые инструменты, адаптация материалов, подготовка учителей, методы на основе ИИ, цифровые образовательные среды, эмпирическое тестирование, соответствие CEFR, учебные результаты

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