

Turusbekova A.D.¹, Seidaliev G.O.²

¹ ²Abai Kazakh National Pedagogical University

¹ Master's student

² PhD, acting Associate Professor

AI-ENHANCED FLIPPED EFL LEARNING AND VOCABULARY ACQUISITION

Abstract

The article discusses the influence of the "inverted class" model, enhanced by artificial intelligence tools in teaching English as a foreign language, on mastering the lexical stock. The focus was on three-stage learning, which is based on independent repetition using artificial intelligence after lessons, recognizing new vocabulary before class, actively using it in the classroom in a semantic context, rather than the model of memorizing words in a traditional lesson. The methodological basis of the study was a comparative analysis of the works of Kazakhstani and Russian researchers published in 2023-2025, systematization of the didactic activities of digital tools and pedagogical design of Model tasks for the EFL lesson. The result of the analysis showed that artificial intelligence is more productive as a means of connecting pre-training, level-adjusted training, instant feedback and interval repetition than as a separate technology that automatically "trains" vocabulary. In the practical part, samples of identifying new words from the text, creating context, conducting a microdialogue with AI-chat, comparing incorrect answers, forming an individual dictionary map and deferred verification were presented.

Keywords: English, EFL, artificial intelligence, inverted classroom, vocabulary, vocabulary, blended learning, personalized learning, generative artificial intelligence, digital pedagogy.

Турусбекова А.Д.¹, Сейдалиева Г.О.²

¹ ²Абай атындағы Қазақ ұлттық педагогикалық университеті

¹ магистрант

² PhD, қауымдастырылған профессор м.а.

Аңдатпа

Мақалада ағылшын тілін шет тілі ретінде оқытуда жасанды интеллект құралдарымен толықтырылған «кері сынып» (inverted classroom) моделінің лексикалық қорды меңгеруге тигізетін әсері қарастырылады. Зерттеу дәстүрлі сабақтағы сөздерді жаттап алу моделіне емес, үш кезеңді оқыту жүйесіне бағытталды: сабақ алдында жаңа лексикамен танысу, сабақ барысында оны мағыналық контексте белсенді қолдану және сабақтан кейін жасанды интеллект көмегімен өз бетінше қайталау. Зерттеудің әдіснамалық негізін 2023–2025 жылдары жарияланған қазақстандық және ресейлік зерттеушілердің еңбектерін салыстырмалы талдау, цифрлық құралдардың дидактикалық қызметін жүйелеу және ағылшын тілі сабағына арналған үлгілік тапсырмаларды педагогикалық тұрғыдан жобалау құрады. Талдау нәтижелері көрсеткендей, жасанды интеллект лексиканы автоматты түрде «жаттықтыратын» жеке технология ретінде емес, алдын ала дайындықты, деңгейге бейімделген оқытуды, жедел кері байланысты және аралық қайталауды өзара байланыстырушы құрал ретінде әлдеқайда тиімді болып табылады. Практикалық бөлімде мәтіннен жаңа сөздерді анықтау, контекст құру, жасанды интеллект чатымен шағын диалог жүргізу, қате жауаптарды салыстыру, жеке сөздік картасын қалыптастыру және кейінге қалдырылған тексеру жұмыстарын жүргізу үлгілері ұсынылды.

Кілт сөздер: ағылшын тілі, EFL (шет тілі ретінде ағылшын тілі), жасанды интеллект, кері сынып, лексика, сөздік қор, аралас оқыту, жекелендірілген оқыту,

генеративті жасанды интеллект, цифрлық педагогика.

Турусбекова А.Д.¹, Сейдалиева Г.О.²

¹ 2Казахский национальный педагогический университет имени Абая

¹ Магистрант

² PhD, и.о. ассоциированный профессор

Аннотация

В статье рассматривается влияние модели «перевернутый класс», дополненной инструментами искусственного интеллекта, на процесс усвоения лексики при обучении английскому языку как иностранному. Основное внимание уделено трехэтапному подходу к обучению, который включает самостоятельное повторение материала с помощью искусственного интеллекта после занятий, предварительное ознакомление с новой лексикой до урока и ее активное использование в классе в смысловом контексте (в противовес традиционной модели механического заучивания слов). Методологическую основу исследования составили сравнительный анализ работ казахстанских и российских ученых, опубликованных в 2023–2025 годах, систематизация дидактических возможностей цифровых инструментов и педагогическая разработка типовых заданий для уроков английского языка. Результаты анализа показали, что искусственный интеллект наиболее эффективен как средство интеграции предварительной подготовки, дифференцированного обучения, мгновенной обратной связи и интервальных повторений, а не просто как отдельная технология для автоматической отработки лексики. В практической части представлены примеры заданий: выделение новых слов из текста, создание контекста, проведение микро-диалога с ИИ-чатом, анализ ошибочных ответов, формирование индивидуальной карты лексики и организация отсроченной проверки знаний.

Ключевые слова: *английский язык, EFL, искусственный интеллект, перевернутый класс, лексика, словарный запас, смешанное обучение, персонализированное обучение, генеративный искусственный интеллект, цифровая педагогика.*

Introduction

In mastering English as a foreign language, the lack of vocabulary does not interfere with the student's only one skill. If the lexical stock is weak, the understanding of the text slows down, the familiar grammatical structure itself may remain unrecognizable in listening, and in speech the student will have to use simple words over and over again to convey the game. In a traditional lesson, it takes a considerable amount of time for the teacher to explain the meaning of new words, give translation, and give several examples. The rest of the classroom time is often limited to short exercises, and the use of the word in fluency, distinguishing shades of meaning, and reproduction after a few days are relegated to the background. The "inverted class" model allows you to allocate time differently: the first acquaintance takes place before the lesson, and the time spent with the teacher is spent on application, not explanation. When generative artificial intelligence is included in said model, even home training is not limited to viewing static video or PDF text. The student can ask for an unknown word, take an example worthy of his level, create additional context, test himself and retrain the word he made a mistake.

The relevance of the article is due to the fact that the problem of introducing artificial intelligence into the EFL lesson "to use or not to use? this is due to the fact that it takes on a much more complex character than a simple choice. Available generative services allow the student to compose a text in a few seconds, give a definition of a word, check a sentence, and prepare a question. But a quick answer does not mean that the lexical unit is memorized or is included in the active vocabulary. If the student entrusts the entire difficult operation to the algorithm, the need to remember it on its own decreases, although the ability to recognize the word increases. Therefore,

the question does not lie in whether artificial intelligence exists, but in what stage of learning activity it is used and for what cognitive task. The inverted model provides a convenient structure for regulating this problem: familiarization and initial understanding at the pre-lesson stage, reproduction and communication in the audience, fixation after classes and repetition along an individual trajectory are organized.

The purpose of the article is to substantiate the didactic possibility of the inverted EFL model for mastering vocabulary, supplemented by artificial intelligence tools, and to present a practical model for its implementation in the structure of the lesson. To achieve the goal, it was envisaged to compare the positions in the latest scientific works of inverted learning and AI-based language learning, identify the main educational actions affecting the acquisition of vocabulary, describe the relationship between the pre-lesson, classroom and post-lesson stages, systematize the mechanisms of using generative artificial intelligence for understanding the meaning of words, creating context, active reproduction and feedback. The object of the study is the development of lexical competence in the process of teaching English as a foreign language. The subject of the study is the influence of artificial intelligence tools included in the inverted learning structure on the actions of mastering, active use and memorization of English words. The theoretical novelty is manifested in the fact that AI and flipped learning are not considered as two separate digital innovations, but as a single didactic cycle that organizes the student's interaction with a new word several times in different situations. The practical novelty is associated with the presentation to the teacher of a clear three-stage model that does not require special programming skills, which can be used using conventional generative AI-chats and digital tasks.

Materials and methods

The study has a theoretical-analytical and pedagogical design character. The material base includes works by Kazakhstani and Russian researchers, published in the period from 2023 to 2025, devoted to the problems of the inverted class, artificial intelligence, personalized language learning and digital communication in a foreign language. The choice of sources took into account the direct connection of the publication with the topic, the year of publication, verification of authorship and bibliographic data, the presence of a DOI identifier. The analysis relied on several content criteria: redistribution of study time, student autonomy, personalization, feedback rate, active work with lexical material, communicative task, academic integrity, and critical testing of AI response. The literary data was then compared with a model cycle for teaching EFL vocabulary, and the function of each digital instrument was adjusted to the actual learning activity.

When creating a practical model, the acquisition of vocabulary was perceived not through the model "saw the word – memorized the translation", but as a process that goes through several stages. On the first attempt, the student recognizes the new unit and predicts the meaning from the context. Later checks the reference, translation or explanation. It further uses the word in a new context, separate from the finished sentence, recalls, connects with other words, notices the wrong use and resumes after a while. Generative AI does not perform the same function at every stage. At the initial stage, it can act as an explainer and example creator, a simulator and dialogue partner in classroom work, and at the final stage as a personal trainer and feedback tool. Pedagogical efficiency was sought not in the name of technology, but in the correct regulation of these services.

Results and literature analysis

The initial didactic advantage of inverted learning is not limited to the transfer of part of the educational material to an extracurricular environment. The main change lies in the content of classroom time. In the study of Zh.A. Aksenova and O. S. Aksenova "optimization of teaching a foreign language in high school: "inverted class" and the method of productive work" it is shown that the model allows you to connect the student's independent training with productive language activity in the classroom. To convey the key point in the work in Kazakh, "free classroom time in an inverted lesson should be directed to productive language activity" [1, 223]. The meaning of this in terms of vocabulary acquisition is significant. For example, instead of translating fifteen new words on the topic "environmental problems" one by one by the teacher during the lesson, students get acquainted with them in advance. At the lesson, a small discussion, Creating cause-

effect relationships or presenting a solution to an environmental problem is organized, without wasting time again explaining such units as pollution, emissions, renewable, consumption. The word is activated not as information, but as a communicative tool.

The personalization issue forms the second pillar of the AI-enabled model. K. A. Asan and S. S. Kunanbayeva in their work "personalized learning and artificial intelligence: opportunities and limitations in teaching foreign languages", based on empirical material covering 100 respondents, including 70 students and 30 teachers, considered the possibility of artificial intelligence to adapt work with vocabulary, text and language material to an individual level. If we summarize the result described by the authors in Kazakh, "AI accelerates language activity adapted to the student's level, but dependence on a ready-made response can weaken critical learning" [2, 6]. In lexical learning, the mentioned contradiction is very clearly expressed. A B1-level student may need a simple definition of a new word and two short examples, while a B2-level student may study the synonymous tone, collocation, and usage of that unit in a formal text. AI is capable of preparing two different exercises for two students. However, completely completing the task "write a text in these ten words" to AI will reduce the lexical activity of the student. For this reason, the generative system is more valuable when it is used in the function of adapting educational material to the student's capabilities, and not as a response producer.

Classifying AI tools by function will help you place technology in place at each stage of an inverted lesson. In the work of Yu.e. Valkova "the problem of classifying artificial intelligence tools in a foreign language lesson", based on the experience of 2022-2024, generative text services, multimedia tools, speech chats, pronunciation correction systems, programs to improve text quality, game tools and automatic verification services are distinguished. If we summarize the author's practical observation in Kazakh, "generative systems can create a text, glossary and exercise based on a given dictionary, but the finished material requires editing by a teacher" [3, 18]. Such a classification is especially useful when designing an EFL vocabulary lesson. Before class, text AI provides the student with a simple definition of the term; in class, a speech bot is used to conduct a role-playing dialogue; after, an automatic system indicates an error in word usage. One platform is not required to perform all tasks. The didactic goal is chosen first, and the technology is then adjusted to it.

Another important aspect of the generative system is the ability to reconstruct a single educational material at several levels of difficulty. S. G. Vishlenkova and E. A. Levina in their study "didactic potential of ChatGPT-4o in teaching foreign languages at a Pedagogical University" consider the generative model in terms of preparing tasks, working with text and supporting educational communication. When the authors give the essence of their position in Kazakh, "generative chat expands the teacher's didactic capabilities if they adapt the educational material and task to a specific pedagogical goal" [4, 103]. As an example, you can take the vocabulary set under the heading "job interview". One group is provided with basic vocabulary such as apply, experience, skill, salary, position, and more complex phrases such as transferable skills, qualification requirements, career prospects, previous employment are given to highly trained students. Although everyone works on a common topic, the linguistic depth of the task will be different. In the traditional format, the teacher spends a lot of time developing multiple options; the AI quickly builds the source material, and the teacher checks the content and language correctness and adjusts it to the purpose of the lesson.

Research in the Kazakh EFL environment shows that interest in generative technology remains not only theoretical. G. A. Nazarbekova's article "Learning English through artificial intelligence: new learning horizons" analyzes the rapid language support of adaptive systems for a student, adaptation to an individual learning pace and expansion of English-language activity. Speaking in Kazakh, "artificial intelligence allows the language learner to work at an individual pace and continue language practice beyond the audience" [5, 118]. Here is an important detail for vocabulary acquisition. In an English lesson, which takes place two or three times a week, the interval for returning to a new word becomes longer. By giving the AI-chat a five-minute task, the student can reactivate the previous words in the free time between classes. For example, the system

is instructed to "give five situations using these 12 words on the topic of travel in the past lesson, do not immediately indicate the answer." The student answers, then compares. As a result, the repetition time does not depend on the physical presence of the teacher.

The adaptive aspect of the inverted model is described in more detail in the study by M. V. Samofalova, O. A. Zharina, V. A. Borisenko and V. A. Trofimova "Adaptive higher education for students of linguistic studies based on the inverted classroom model of mixed learning." The authors point out the need to create independent pre-medical training and intra-curricular activities in one system, taking into account differences in student learning opportunities. By formulating the main idea in Kazakh, "the material learned in advance at its own pace prepares the basis for more complex communicative activities in the audience" [6, 152]. Working with vocabulary follows the same logic. To find the original translation of a word, the whole group does not have to wait for the teacher at the same time. The material that one student will master in ten minutes can be viewed by another for twenty minutes. When both are familiar with the keywords, when they come to the lesson, there is an opportunity to complicate the task in the audience. Instead of checking which student does not know the translation of a word, the teacher's job turns to observing who cannot use the word correctly in context.

Ignoring the student's emotional and critical reaction to working with artificial intelligence hinders the creation of an effective model. In the study by N.V. Tikhonova and G. M. Ilduganova, "The speed of artificial intelligence development scares me": students' perception of artificial intelligence in teaching foreign languages, along with interest in technology, reactions such as distrust, concern about rapid changes, and doubts about the AI response were recorded. When presenting the authors' position, "although students recognize the acceptability of AI tools, they are cautious about its errors, dependence, and changes in learning activities" [7, 74]. In a lexical lesson, this caution can become a pedagogical resource. The student is asked to find an incorrect or questionable use instead of copying the text written by the AI as a ready-made answer. For example, if the system suggests unnatural phrases such as strong rain, make a party, say the truth, the student corrects them with versions of heavy rain, have a party, tell the truth. Here, AI is perceived as a producer of text that needs to be verified, and not as an "authority" to which it responds flawlessly. This work, along with memorizing words, develops language control.

Research results and discussion

When combining the literature data, a three-stage structure for AI-enhanced flipped vocabulary learning is determined: pre-academic training, classroom activation, and post-secondary reinforcement. In each of the three stages, the student performs a different operation with one word. The importance of this lies not in the number of meetings of the same lexical unit several times, but in the changing nature of each meeting. The first time a student recognizes a word at the recognize level, the next time he interprets the meaning at the meaning level, remembers it in the classroom using retrieve and use, and then recompiles it in a new context. A repetitive, but not mechanical, action on a single word is organized.

It is not advisable to give extensive homework for the pre-school period. Sending a student 40 new words, five pages of text, and twenty questions turns the "inverted classroom" into an extended home lecture. In the compact version, 8-12 target words are selected, which are transmitted as a short text or two-minute video. The student first guesses the meaning of the word from the context. Only then is it allowed to check with AI. For example, the prompt content does not immediately provide a Kazakh translation of the word "sustainable". At the B1 level, two English sentences can be formed, the meaning of which I am trying to find myself." This formulation pushes the student to the first cognitive activity, postponing the finished answer of the algorithm. In the next request, the student sends his forecast, and the AI gives a brief feedback. A new word is revealed not by a ready-made definition, but by solving a small problem.

The second step of the preliminary work will be aimed at comparing words between contexts. For example, if the word "issue" is memorized only with the translation "problem", the student may use it mechanically instead of every problem. AI is asked to give three issue proposals on the topics of ecology, work and public opinion. The student finds a common semantic core. For

a verbose word like "Charge", the contexts of phone charging, service charges, and charges are compared. Such a task is closer to recognizing the semantic field of a word than to memorizing its counterpart in the Kazakh language. However, the first lesson does not require you to reveal all the versatility. The target context is maintained and additional meanings are given in an amount that does not confuse the student.

The classroom lesson can begin with a short retrieval activity of the first five to seven minutes. The translation of new words is not displayed on the screen. The teacher reads the situation or offers a picture, the student remembers the necessary unity. For example, "A company uses less electricity and produces less waste. What adjective can describe its policy?" the word sustainable is required. In another case, an unfinished sentence is provided, not a definition. With such a check, it is clear that the student did not "see" the material at home, but could reproduce the word without assistance. An incorrect answer does not become an instrument of punishment. The teacher sees which words are still on the passive level, and often uses them in subsequent assignments.

At the next stage, the words move on to pair and group communication. For example, let's assume that there are ten target words in the "work and career" heading: vacancy, applicant, qualification, recruit, responsibility, flexible, salary, promotion, experience, deadline. One student takes on the role of an employer, and the other is a candidate. The card records the condition for the natural use of at least six target units. AI should not write the main story here instead of the student. It is useful to use it as a task generator: a hotel receptionist vacancy is created for one pair, a graphic designer for another, and a laboratory assistant for the third. One lexical set is included in several real situations. Even if the meaning of words does not change, the communicative environment around them is updated.

The use of AI as a partner that generates opposing opinions in the audience gives more interesting results. For example, when the topic is "technology and education", students first discuss "AI makes students more independent". The generative system is then asked for three short arguments for the opposite position. The group marks the unfamiliar vocabulary units in the response and combined with the target words to form a counter response. Here, although the algorithm introduces new content into the conversation, the final language product belongs to the student. The line between reading the finished AI text and composing your own answer is maintained.

One of the most effective tasks for deep vocabulary processing is AI error Editing. The teacher can prepare a small text from the generative system, in which deliberately dubious uses are mixed, or he himself introduces several collocation errors. The Student finds forms such as "do a decision", "strong rain", "high salary job is very perspective", suggests the right option and explains why he changed it. At a more complex level, words that are grammatically correct, but not appropriate to the context, are given. For example, the difference between the words economic and economic, sensible and sensitive, actual and current is checked not only by translation, but also by specific situations. AI response Editing combines technological literacy and lexical precision work into a single task.

In the post-lesson period, it is important to individualize interval repetition. Instead of giving all students the same twenty questions, a personal mini-review can be created based on incorrect words in the lesson. While one student confused the words deadline, recruit, and qualification, the AI created a three-minute test for them alone. After a day, it is not multiple choice that is given, but the replenishment of the vacancy. After three or four days, a small situation is recorded. After a week, the word is required to be remembered without giving any cue. Due to the fact that the content of the tasks is changing, the student does not mechanically memorize the answer pattern.

In assessing the result of mastering the word, one should not be limited to the test carried out immediately. The Immediate post-test often shows short-term memory. The concept of lexical acquisition involves long-term preservation and use in a new context. At least three criteria are appropriate for this: word recognition, word recall without help, and correct use in a new sentence.

For example, in the first Test “Which word means...? the task of the "type", followed by self-writing a word from the Kazakh or English meaning, at the third stage is given to form a sentence for a new situation. The delayed test after a week provides more accurate information. While the student responds 90 percent at the end of class and drops to 50 percent after seven days, the initial rate is high, the retention is weak.

The efficiency can also be assessed using a small quasi-experiment. A group with two levels close is taken and 20-25 new lexical units of the same subject are given to both. In the control group, traditional explanatory, vocabulary and textbook exercises are used. The experimental group performs a short guided discovery task via AI before class, uses target vocabulary in the classroom in pair communication, and receives a repeat after class adapted to their individual mistakes. The results of the Pre-test, immediate post-test and two weeks later the delayed post-test are compared. The effect of the model is more pronounced if the assessment is not limited to a single average score, but is carried out by the number of target words used correctly, the proportion of incorrect collocation and the number of units used in fluency.

A hypothetical statistical model is useful for demonstrating the way in which the result is interpreted. For example, if in two equal groups of 60 students the results of the initial lexical test were 42.8% in the experimental group and 43.1% in the control group, the initial difference between the groups is insignificant. Let's assume that after a four-week cycle, the immediate post-test score of the experimental group reached 81.6% and that of the control group-69.4%. During the delayed test after two weeks, the indicators can be 74.2% and 58.7%, respectively. Such numbers should be taken not as the result of a real experiment carried out, but as a model problem that shows with what logic the data should be compared in a future empirical study. It is contrary to the scientific requirement to show artificial statistics as "the result obtained" before the experiment is carried out in a specific article.

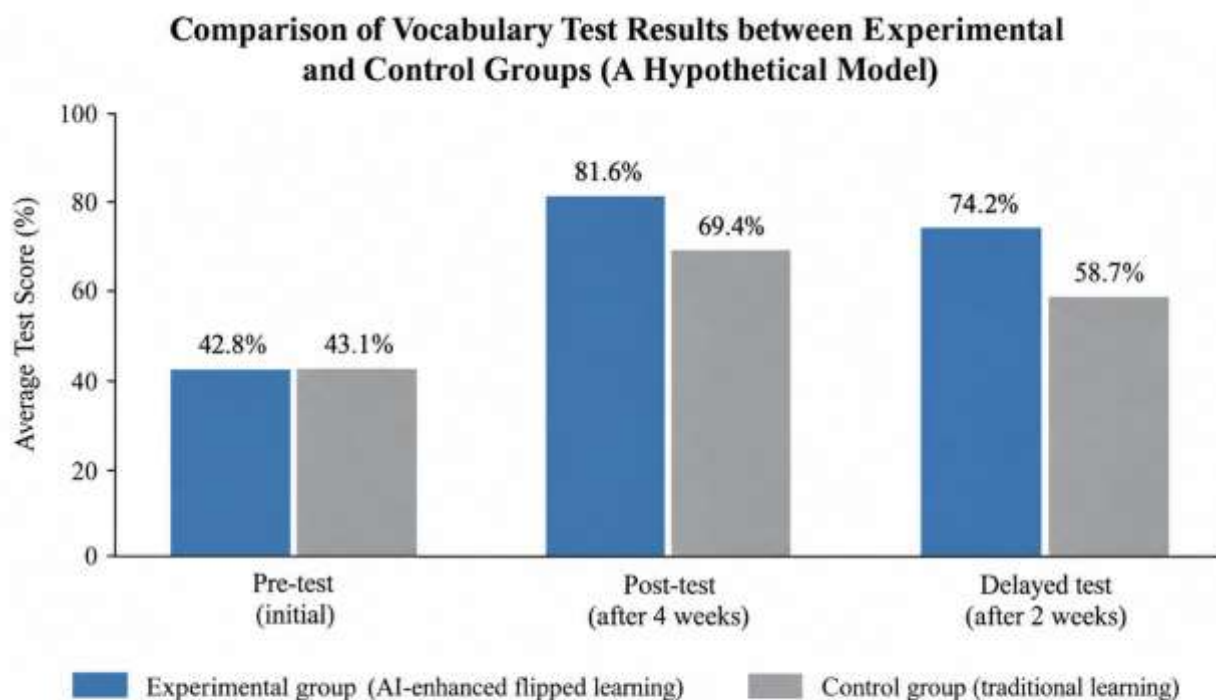


Fig. 1. Hypothetical model of vocabulary test results for experimental and control groups

Note: The data are hypothetical and are presented for illustrative purposes to demonstrate the logic of comparison in a future empirical study.

Accurate quantitative data from published studies show that there is a high interest in AI's personalization potential in language learning. The study of K. A. Asan and S. S. Kunanbayeva involved 100 people, including 70 students and 30 teachers. Yu. e. Valkova systematized the experience of 2022-2024 and analyzed several categories of tools, from text compilation to

automatic verification. Such indicators make it clear that the technology is not limited to just one chatbot. However, an increase in the number of tools does not increase the quality of self-study. It is more efficient to use one tool for a well-defined lexical operation than to use five AI services in one lesson.

One of the issues that needs to be discussed is cognitive offloading, that is, the transfer of an intelligent operation to technology. If the student asks the AI for a ready-made translation, sentence, answer and text at the moment when unfamiliar word meets, the external result of the task will come out quickly, but the retrieval action that a person must perform for memory will be reduced. The correct limiting order in the inverted model can counteract this. The first instruction: "first try to guess for yourself." Second instruction: "compare with the AI answer". Third: "compose a new example yourself." Fourth: "let the AI explain a specific error in your sentence." Such a structure creates conditions for the student to become an intermediate verifier of the student's activity, without being replaced by an algorithm.

Academic integrity should also be regulated by a clear regulation within the framework of vocabulary learning. A complete ban on "AI cannot be used" is likely to push the student to use it anonymously, and unlimited permission will lose the essence of the task. It is more understandable to determine the area of application by the type of activity. It is allowed to compare the definition of a new word, ask for an additional example, explain the error of one's own sentence. And it is limited to the full generation of the evaluated essay or by writing a ready-made replica for the speaking task. During the assessment, the student is asked to briefly explain where the AI changed the answer, while the use of technology approaches reflective action from implicit copying.

The role of the teacher also changes. Previously, the main effort was spent on explaining the material, but in the AI-enhanced flipped lesson, the teacher designs a learning route, filters a low-quality AI response, selects which words should be actively used, and changes the direction of the next task depending on the student's mistake. The professional value of a teacher is not measured by knowledge of a ready-made definition. It is more important to be able to notice which word the student needs right now, which task is excessively difficult, at what point technology not only made the student's work easier, but did it instead.

In practice, the AI-enhanced flipped vocabulary cycle can be built for about seven days per topic. On the first day, the student gets acquainted with 10-12 words before class. On the second day, the audience will be able to recall, classify and use words in a role-playing situation. That evening, AI gives a personal micro-quiz for three or four words that went wrong. On the fourth day, the student prepares 80-100 words of small text or one minute of audio with the same vocabulary. On the seventh day, a short check with a reduced cue is held. When the next topic begins, three or four of the previous words are deliberately inserted into the new context. Vocabulary does not disappear after the end of one topic, but connects with subsequent material.

As an example, you can take the heading "Healthy lifestyle". Target vocabulary: balanced diet, sedentary, nutrient, maintain, habit, prevent, intake, exhausted, recover, moderate. Before class, the student uses AI to read the B1-level interpretation of each word, guess the meaning, and determine which word is a noun, adjective, or verb. In the lesson, students are characterized by the short lifestyle of three characters: an employee who sits in the office all day, an athlete who does not rest properly after training, a student with an unstable eating regime. Each group will advise the character using at least six of the target vocabulary. AI is then tasked with arguing against one of those boards, and students test the answer in language and content terms. After class, each student made three new sentences with the words he used incorrectly. A week later, "how can university students avoid burnout? in a small speech task on the topic" former vocabulary is reused. Ten words on the same topic turn from an object of memorization into a means of reasoning.

Another option is suitable for Academic English. In the "Research and evidence" block, words such as hypothesis, variable, reliable, sample, evidence, interpret, significant, limitation are taken. Before class, the student identifies words from a short research annotation through context. AI prepares one correct and one misleading example for each, without giving a definition of words.

The student chooses the right one and writes the reason. The audience finds methodological limitations in the description of a small research project and explains them using target words. Later, the AI corrects the overly confident claim or inappropriate use of the word in the "scientific" paragraph. Such a task does not separate vocabulary acquisition and academic literacy.

Conclusion

The AI-enhanced flipped EFL learning model allows you to break the learning of new words in English into several interconnected learning activities, taking them out of the framework of classroom interpretation. Before class, the student first recognizes the lexical unit, guesses the meaning and checks it using AI. In the audience, the word is transferred from the level of finished definition to communication, remembered, used in a pair or group situation, checked for semantic and collocation accuracy. After the lesson, the algorithm can arrange a short repetition according to individual difficulties. Artificial intelligence in such a structure serves as a tool for changing the level of educational material, creating different contexts and accelerating feedback, and not a text generator that works instead of a student.

Theoretical analysis showed that the main strength of inverted learning lies not in freeing up classroom time, but in redirecting that time to more complex language activities. AI adds a layer of personalization to this model: the same word set can be represented for each student with different complexity, different example and different repetition frequency. However, uncontrolled use of the generative system is more likely to increase dependence on the finished response and reduce the amount of spontaneous mention of a word. To do this, the training task must require the student to act before the AI: predict, choose, recall, make sentences, find errors, prove. When a technological response is given after the mentioned operations, its pedagogical value increases.

The practical model can also provide the basis for future empirical research. At the next research stage, it is appropriate to compare the results of the traditional EFL group and the AI-enhanced flipped group using pre-test, immediate post-test and delayed post-test, simultaneously measuring the growth of active vocabulary, collocation accuracy, the number of target vocabulary in fluency and the level of students' dependence on technology. The true result of mastering the vocabulary should be assessed not by the number of correct answers at the time of the end of the test, but by the ability to remember the word after a few weeks without help and use it appropriately in a new situation. The future of artificial intelligence in EFL education also depends not so much on how much text the algorithm can create, but on how much the teacher and student can turn it into a competent reading activity.

References:

1. Aksenova Zh.A., Aksenova O.S. *Optimization of Foreign Language Teaching in Higher Education: The Flipped Classroom and Productive Work Method* // *Russian Journal of Education and Psychology*. – 2023. – Vol. 14. – No. 6. – P. 217–228. – DOI: 10.12731/2658-4034-2023-14-6-217-228.
2. Asan K.A., Kunanbayeva S.S. *Personalized Learning and Artificial Intelligence: Opportunities and Limitations in Foreign Language Teaching* // *Bulletin. Series: Pedagogical Sciences*. – 2025. – Vol. 78. – No. 3. – DOI: 10.48371/PEDS.2025.78.3.024.
3. Valkova Yu.E. *On the Classification of Artificial Intelligence Tools for Use in Foreign Language Classes at University* // *Bulletin of the Moscow City University. Series: Pedagogy and Psychology*. – 2025. – Vol. 19. – No. 3. – P. 10–24. – DOI: 10.24412/2076-9121-2025-3-10-24.
4. Vishlenkova S.G., Levina E.A. *Didactic Potential of ChatGPT-4o in Foreign Language Teaching at a Pedagogical University* // *Modern High Technologies*. – 2024. – No. 6. – P. 100–106. – DOI: 10.17513/snt.40071.
5. Nazarbekova G.A. *Learning English through Artificial Intelligence: New Horizons in Education* // *Bulletin of Abai KazNPU. Series: Philological Sciences*. – 2025. – Vol. 91. – No. 1. – P. 111–125. – DOI: 10.51889/2959-5657.2025.91.1.012.
6. Samofalova M.V., Zharina O.A., Borisenko V.A., Trofimova V.A. *Adaptive Higher Education for Linguistics Students Based on the Flipped Classroom Blended Learning Model* //

Perspectives of Science and Education. – 2023. – No. 6 (66). – P. 145–159. – DOI: 10.32744/pse.2023.6.8.

7. Tikhonova N.V., Ilduganova G.M. “*I Am Frightened by How Fast Artificial Intelligence Is Developing*”: *Students’ Perceptions of Artificial Intelligence in Foreign Language Learning // Higher Education in Russia*. – 2024. – Vol. 33. – No. 4. – P. 63–83. – DOI: 10.31992/0869-3617-2024-33-4-63-83.