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# IMPROVING THE METHODOLOGY FOR ENHANCING THE ENGLISH VOCABULARY OF FUTURE ENGLISH LANGUAGE TEACHERS BASED ON ARTIFICIAL INTELLIGENCE AND INTERACTIVE PLATFORMS

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**Abstract**

This article explores the issues of improving the methodology for enhancing the vocabulary (lexical competence) of future English language teachers in higher pedagogical education institutions using Artificial Intelligence (AI) technologies and interactive digital platforms. In the context of the digitalization of education, the pedagogical mechanisms of utilizing intelligent chatbots, corpus-based tools, and adaptive platforms in students' independent and classroom learning are analyzed. During the research, the effectiveness of AI systems in expanding the professional and general lexical base of students was determined using a comparative pedagogical experiment. Based on the obtained statistical results, methodological recommendations were developed for higher education practice.

**Keywords**: artificial intelligence, interactive platforms, lexical competence, future teacher, English language, adaptive learning, methodology, digital pedagogy.

Introduction

In the era of modern information society and global digitalization, the higher pedagogical education system faces the fundamental task of elevating the professional mastery of future foreign language teachers. One of the most critical components determining the professional readiness of an English language teacher is a rich and flexible vocabulary [1; 42 45-b.]. A robust lexical stock allows not only for fluent self-expression but also for full engagement with modern textbooks, scientific literature, and international educational resources.

However, in higher education institutions today, the process of vocabulary development is often carried out through traditional, static, and monotonous methods. In many cases, students learn words isolated from context through rote learning, which leads to the retention of acquired knowledge only in short-term memory and an inability to activate it in real speech situations [2; 18 22-b.]. The traditional educational format lacks the capability to fully address the individual needs of students, their varying learning paces, and personal interests [3; 74 78-b.].

Artificial Intelligence (AI) technologies and interactive platforms (e.g., ChatGPT, Quizlet, Kahoot, Memrise, as well as specialized neural-network corpus tools and adaptive learning systems) present unprecedented opportunities to eliminate these contradictions and optimize teaching methodologies [4; 105 109-b.]. AI technologies have the power to individualize education, build tailored learning trajectories for each student, and provide real-time feedback. The purpose of this study is to develop a model for developing the lexical skills of future English teachers based on an ecosystem of AI and interactive platforms and to scientifically substantiate its practical effectiveness.

Methodology

The research work was carried out with the participation of undergraduate students of the Faculty of Foreign Languages at the Samarkand State Institute of Foreign Languages. The experimental and pilot work was organized based on a combination of systemic, comparative, and experimental methods. A total of 60 students were involved in the research, divided equally into two groups: control (30 students) and experimental (30 students) [5; 51 54-b.].

In the control group, lexical materials were mastered through traditional methodological manuals, printed dictionaries, and text-based reading exercises. In the experimental group, the lesson process and independent study hours were organized based on a specific methodology integrated with AI programs and interactive platforms [6; 92 96-b.]. The methodological algorithm applied in the experimental group included the following stages:

- Individual Adaptive Diagnostics: The initial vocabulary level of the students was tested through AI-based platforms to identify their strengths and weaknesses.
- Intelligent Contextualization: Using ChatGPT and similar Large Language Models (LLMs), lexical texts, glossaries, and interactive communication scenarios tailored to each student's field of interest and proficiency level (based on the i+1 principle) were generated [7; 112 116-b.].
- Interactive Gamification: A spaced repetition system was established on platforms like Quizlet and Kahoot to reinforce the learned vocabulary.
- Practical Communication with AI Chatbots: Students transferred new words from passive to active vocabulary by using them in written and oral communication with AI conversational bots.

To evaluate the dynamics of student growth, diagnostic exams (Pre-test and Post-test) were conducted before and after the experiment. Lexical competence levels were measured according to four core criteria: vocabulary breadth, vocabulary depth (understanding polysemy and synonyms), contextual usage, and productive lexis [8; 210 214-b.]. The results were processed using mathematical-statistical analysis methods.

Results

The data obtained at the end of the research demonstrated that organizing lessons based on artificial intelligence and interactive platforms is highly effective in expanding students' vocabulary. The table below presents a comparative analysis of the pre-experimental and post-experimental indicators by criteria.

Comparative Indicators of Lexical Competence Development in Experimental and Control Groups (100-point scale)

| Groups and Criteria | Average Pre-test Score | Average Post-test Score | Average Growth Coefficient |
|---|---|---|---|
| Experimental Group (AI & Platforms) | | | |
| Vocabulary Breadth | 46.2 | 89.5 | +43.3 |
| Vocabulary Depth | 41.8 | 84.2 | +42.4 |
| Contextual Usage | 38.5 | 81.7 | +43.2 |
| Productive Lexis | 35.0 | 78.4 | +43.4 |
| Control Group (Traditional Methodology) | | | |
| Vocabulary Breadth | 45.8 | 62.4 | +16.6 |
| Vocabulary Depth | 42.1 | 55.9 | +13.8 |
| Contextual Usage | 39.0 | 54.2 | +15.2 |
| Productive Lexis | 34.6 | 48.1 | +13.5 |

As shown in the table, the performance of the students in both groups was nearly identical at the initial stage. However, according to the final results, the experimental group achieved a growth of over 40 points across all criteria [9; 133 137-b.]. Particularly, in the "Productive Lexis" criterion, while the traditional group showed an increase of only 13.5 points, the group that communicated via AI tools rose by 43.4 points.

This quantitative shift indicates that AI platforms enabled students to dynamically activate words within context rather than merely memorizing them. An analysis of the final essays and oral presentations submitted by the students revealed that participants in the experimental group began to flawlessly deploy more academic, field-specific complex collocations and idioms in their speech [10; 89 93-b.].

Discussion

The positive results obtained call for a deeper pedagogical understanding of the educational advantages of artificial intelligence and digital platforms. In traditional methodology, the instructor gives the same vocabulary list to all students and demands execution at the same pace. However, according to the principles of cognitive linguistics, the processes of semantization (understanding the meaning) and memory retention of lexical units are highly individual [11; 198 202-b.].

The success of the AI-based methodology is explained by its "adaptability" feature. The platform analyzes student errors in real-time and repeatedly presents the words they struggle with across diverse contexts. This process properly distributes the cognitive load and reliably transfers data from short-term memory to long-term memory using spaced repetition technology [12; 315 319-b.].

These outcomes align fully with the conclusions of international research conducted in the field of Mobile Assisted Language Learning (MALL) [13; 56 60-b.]. Artificial intelligence sets up a psychologically safe learning environment for the student, lowering the affective filter. The student does not fear making mistakes because a robot does not criticize them; instead, it instantly corrects errors and explains the accurate options. However, it is essential to emphasize that AI can never replace a teacher; it is a powerful, intelligent assistant tool in the teacher's hands. The success of the methodology directly depends on the teacher's digital pedagogical competence and their ability to properly design dars scenarios [14; 144 148-b.].

Conclusion

This research work, conducted on the basis of the Samarkand State Institute of Foreign Languages, proved that the systematic use of artificial intelligence and interactive platforms is the most effective and modern driver for expanding the vocabulary of future English teachers. Digital technologies transform the vocabulary acquisition process from tedious memorization into a lively, interactive, and person-centered creative journey.

To digitally transform English teaching methodologies in higher pedagogical educational institutions and optimize students' lexical base, we put forward the following recommendations:

1. Integrate a specific block of digital assignments involving AI chatbots and intelligent vocabulary platforms into the curricula of Practical English courses across foreign language faculties.

2. Utilize gamified platforms with spaced repetition systems (Quizlet, Memrise, etc.) as mandatory and motivational tools in systematically organizing students' independent study hours.

3. Train future teachers not only to use AI for their own language learning but also practically equip them with methodologies to teach vocabulary using artificial intelligence tools (AI-literacy in language teaching) in their future classes.

4. Shift the traditional classroom perceptions of professors and instructors, and organize methodological retraining courses focused on using artificial intelligence to generate individualized learning materials.

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