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AI-ENHANCED VOCABULARY ACQUISITION IN PRACTICAL ENGLISH COURSES FOR PRE-SERVICE PRIMARY TEACHERS

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Abstract. *The integration of artificial intelligence (AI) into foreign language education has opened new possibilities for enhancing vocabulary acquisition in higher education. This study explores the pedagogical potential of AI-supported tools for developing lexical competence in Practical English courses for pre-service primary teachers. A mixed-methods research design was employed, combining pre-test and post-test assessment, pedagogical observation, and a student questionnaire. The findings indicate that AI-supported tools contribute to improved receptive and productive vocabulary skills, increased learner engagement, and greater confidence in using English for classroom communication. The study highlights the importance of pedagogically grounded integration of AI tools and confirms their relevance for teacher education programmes focused on primary school contexts.*

Keywords: *vocabulary acquisition; AI-supported tools; Practical English; pre-service primary teachers; lexical competence; teacher education.*

Introduction

The rapid development of artificial intelligence (AI) has significantly influenced contemporary foreign language education and stimulated the search for innovative pedagogical approaches. In higher education, AI-supported tools are increasingly integrated into language instruction to enhance learner engagement, individualisation, and communicative practice. This tendency is particularly relevant for Practical English courses designed for pre-service primary teachers, whose professional role requires not only general language proficiency but also well-developed lexical competence for classroom communication.

Vocabulary acquisition plays a central role in early foreign language education, as it provides the foundation for the development of listening, speaking, reading, and writing skills. For future primary school teachers, lexical competence is of special importance, since they act as linguistic models for young learners and are responsible for introducing new vocabulary in a clear, contextualised, and age-appropriate manner. Insufficient vocabulary mastery at the stage of teacher training may limit instructional effectiveness and negatively affect learners' motivation in primary school.

Recent advances in AI-supported language learning offer new opportunities to address these challenges. Chatbots, adaptive learning platforms, and AI-based pronunciation tools enable repeated lexical exposure, contextualised practice, and immediate feedback. These features are particularly valuable for first-year pre-service teachers, including students with lower language proficiency or those studying under blended or distance learning conditions. Moreover, AI-supported tools promote learner autonomy and continuity of vocabulary practice beyond the classroom.

The aim of this study is to examine the effectiveness of AI-supported tools in enhancing vocabulary acquisition in Practical English courses for pre-service primary teachers. The research objectives are to analyse the impact of AI-supported tools on receptive and productive lexical skills and to identify their pedagogical potential for classroom instruction and independent learning. The novelty of the study lies in its focus on vocabulary acquisition within teacher education and its empirical examination of AI-supported lexical instruction in a Practical English context.

Literature Review

Recent foreign research demonstrates sustained interest in technology-enhanced vocabulary acquisition within AI-supported language learning environments. Scholars consistently argue that effective lexical development relies on repeated exposure, contextualised input, and opportunities for active lexical use in meaningful communication (Nation, 2013; Schmitt, 2019). AI-supported tools, including chatbots and intelligent tutoring systems, facilitate these processes through personalised practice, adaptive sequencing, spaced repetition, and immediate corrective feedback (Huang et al., 2022; Du & Daniel, 2024). Empirical studies report positive effects on lexical retention, accuracy, and learner engagement, particularly among learners with lower proficiency levels (Jeon et al., 2023; Wang et al., 2024). At the same time, researchers emphasise that vocabulary gains depend on the purposeful pedagogical integration of AI tools within communicative and task-based instructional frameworks rather than on technology alone (Yang et al., 2022).

Ukrainian scholarship traditionally views vocabulary acquisition as a core component of communicative competence and professional teacher training.

Researchers highlight the importance of contextual and functional approaches to lexical instruction in foreign language education (Nikolaieva, 2015; Bihych, 2017). More recent studies emphasise the role of digital technologies in supporting vocabulary development, learner autonomy, and individual learning trajectories (Bykov, 2020; Lytvynova, 2021). Particular attention is paid to the lexical preparation of future primary school teachers, who must adapt vocabulary to young learners' cognitive and linguistic characteristics (Morska, 2020). Prystai (2023) further underlines the importance of systematic and contextualised vocabulary instruction in teacher education. However, empirical studies focusing specifically on AI-supported vocabulary acquisition in Practical English courses remain limited, which confirms the relevance of the present research.

Based on the analysed literature, which highlights the importance of contextualised practice, learner autonomy, and personalised feedback, the present study adopts a mixed-methods design to examine the effectiveness of AI-supported tools in Practical English instruction.

Methodology

The study employed a mixed-methods research design combining quantitative and qualitative approaches. The participants were first-year pre-service primary teachers enrolled in a Practical English course. To examine the effectiveness of AI-supported tools in vocabulary acquisition, the research methods included pedagogical observation, pre-test and post-test assessment of lexical competence, and a structured student questionnaire. The lexical tests measured receptive and productive vocabulary knowledge, including word recognition, contextual use, and lexical accuracy. AI-supported tools were integrated into classroom instruction and independent study tasks over a defined instructional period. The collected data were analysed using descriptive statistics and qualitative content analysis, which ensured triangulation of findings and enhanced the validity of the results.

AI Tools and Platforms Used in the Study

To support vocabulary acquisition, the study employed a set of AI-supported tools selected according to their pedagogical relevance and accessibility. Text-based

conversational practice was conducted using ChatGPT, which functioned as an adaptive dialogue partner for contextualised lexical use. Voice-based interaction was supported through Mondly, enabling spoken vocabulary practice with automated feedback. Adaptive vocabulary revision was implemented using Duolingo and Quizlet, which provided personalised practice and spaced repetition. Pronunciation of newly learned lexical items was supported by ELSA Speak. These tools were integrated into both classroom activities and autonomous learning tasks.

Table 1 - AI Tools and Their Contribution to Vocabulary Acquisition

AI tool type	Platform	Type of lexical practice	Observed outcomes
Text-based chatbot	ChatGPT	Contextualised written interaction	Improved lexical accuracy
Voice-based chatbot	Mondly	Spoken vocabulary practice	Increased fluency and confidence
Adaptive platforms	Duolingo, Quizlet	Thematic revision and repetition	Improved retention
Pronunciation tool	ELSA Speak	Phonological accuracy	Clearer lexical articulation
Integrated self-study tools	Combined use	Autonomous vocabulary practice	Higher learner autonomy

Results The analysis of the research data indicates a positive impact of AI-supported tools on vocabulary acquisition in Practical English. A comparison of pre-test and post-test results revealed noticeable improvement in both receptive and productive lexical skills. Students demonstrated increased accuracy in lexical choice and greater ability to use newly learned vocabulary in context. The most significant progress was observed in tasks requiring contextualised lexical use.

Pedagogical observation showed higher levels of learner engagement and more frequent use of target vocabulary during AI-supported activities. Students were more willing to experiment with new lexical items and displayed reduced anxiety in speaking and writing tasks. These effects were particularly evident among students with lower initial lexical competence.

Questionnaire data further confirmed these findings. Most participants reported that AI-supported tools facilitated vocabulary memorisation and encouraged regular independent practice. Students noted increased confidence in using English for classroom communication, including giving instructions and explaining tasks.

Discussion

The findings of the study are consistent with previous research on AI-supported vocabulary learning. Similar to the conclusions of Huang et al. (2022) and Du and Daniel (2024), the results confirm that personalised practice and immediate feedback contribute to measurable lexical gains. The observed increase in learner confidence supports the findings of Wang et al. (2024) regarding the affective benefits of conversational AI. Importantly, the study confirms that positive outcomes depend on purposeful pedagogical integration of AI-supported tools rather than on technology alone, as emphasised by Yang et al. (2022).

Conclusion

The study demonstrates that AI-supported tools have considerable potential for enhancing vocabulary acquisition in Practical English courses for pre-service primary teachers. Their use supports systematic lexical development, learner autonomy, and professional language readiness. AI-supported vocabulary instruction effectively complements traditional teaching methods and addresses the specific needs of future primary school teachers. Further research may focus on long-term lexical retention and the transfer of AI-supported practices to primary school classrooms.

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Анотація. *Інтеграція штучного інтелекту (ШІ) у навчання іноземних мов відкрила нові можливості для вдосконалення засвоєння лексики у вищій освіті. У цьому дослідженні розглянуто педагогічний потенціал інструментів із підтримкою ШІ для розвитку лексичної компетентності в курсах практичної англійської мови для майбутніх учителів початкової школи. Застосовано змішаний дизайн дослідження, що поєднує вхідне та вихідне тестування, педагогічне спостереження і анкетування студентів. Результати засвідчують, що інструменти з підтримкою ШІ сприяють поліпшенню рецептивних і продуктивних лексичних умінь, підвищенню навчальної залученості та зростанню впевненості у використанні англійської мови для комунікації в освітньому середовищі. Дослідження підкреслює важливість педагогічно обґрунтованої інтеграції інструментів ШІ та підтверджує їхню доцільність для програм підготовки вчителів, орієнтованих на контекст початкової школи.*

Ключові слова: *засвоєння лексики; інструменти з підтримкою ШІ; практична англійська мова; майбутні вчителі початкової школи; лексична компетентність; педагогічна освіта.*