THE IMPACT OF AI CHATBOTS AND NLP MODELS ON LEARNING LEXICAL COLLOCATIONS.

Radjabova Khilola Abdurasulovna
"TIIAME" National Research University, Tashkent
Uzbekistan
E-mail: Kheelola15@gmail.com
ORCID ID:https://orcid.org/0000-0002-1234-237X

Abstract. Artificial intelligence (AI) has significantly impacted language learning, especially in the acquisition of lexical collocations. Traditional methods often fail to provide contextualized learning experiences, which hinders effective acquisition. This article investigates how AI-driven chatbots and Natural Language Processing (NLP) models address these challenges by offering interactive, adaptive, and personalized learning opportunities. AI systems like GPT and BERT provide real-time feedback, exposure to authentic collocation patterns, and tools to refine learners' vocabulary. However, issues such as limited contextual awareness and potential biases in AI models still persist. Despite these limitations, the integration of AI tools alongside traditional teaching methods offers a promising approach to enhance lexical collocation learning, making language acquisition more efficient for English philology students.

Keywords: Artificial Intelligence, Lexical Collocations, Natural Language Processing, AI Chatbots, Language Learning, Personalized Learning

ВЛИЯНИЕ ЧАТ-БОТОВ И ИСПОЛЬЗОВАНИЯ МОДЕЛЕЙ ОБРАБОТКИ ЕСТЕСТВЕННОГО ЯЗЫКА (NLP) НА ИЗУЧЕНИЕ ЛЕКСИЧЕСКИХ КОЛЛОКАЦИЙ

Аннотация. Искусственный интеллект (ИИ) значительно повлиял на изучение языков, особенно в освоении лексических коллокаций. Традиционные методы обучения часто не обеспечивают контекстуализированного подхода, что затрудняет эффективное освоение лексики. В статье исследуется, как ИИ-чат-боты и модели обработки естественного языка (NLP) решают эти проблемы, предлагая интерактивные, адаптивные и персонализированные возможности обучения. Системы ИИ, такие как GPT и BERT, обеспечивают обратную связь в реальном времени, знакомят учащихся с подлинными образцами коллокаций и помогают улучшить словарный запас. Однако проблемы, такие как ограниченное понимание контекста и возможные предвзятости в ИИ-моделях, сохраняются. Несмотря на эти ограничения, интеграция ИИ-технологий с традиционными методами обучения открывает перспективы для улучшения усвоения лексических коллокаций и повышения эффективности языкового обучения для студентов-филологов.

Ключевые слова: Искусственный интеллект, лексические коллокации, обработка естественного языка, чат-боты ИИ, обучение языкам, персонализированное обучение

SI CHAT-BOTLARI VA TABIIY TILNI QAYTA ISHLASH (NLP) MODELLARINING LEKSIK KOLLOKATSIYALARINI ORGANISHGA TA'SIRI

Annotatsiya. Sun'iy intellekt (AI) til o'rganishga, ayniqsa leksik birikmalarni o'zlashtirishga sezilarli ta'sir ko'rsatdi. An'anaviy o'qitish usullari ko'pincha kontekstli yondashuvni ta'minlamaydi, bu esa lug'atni samarali o'rganishni qiyinlashtiradi. Ushbu maqola AI chatbotlari va tabiiy tilni qayta ishlash (NLP) modellari interaktiv, moslashtirilgan va moslashtirilgan o'rganish tajribasini taklif qilish orqali ushbu muammolarni qanday hal qilishini o'rganadi. GPT va BERT kabi sun'iy intellekt tizimlari real vaqt rejimida fikr-mulohazalarni taqdim etadi, o'quvchilarni o'zaro birikmalarning haqiqiy misollari bilan tanishtiradi va so'z boyligini yaxshilashga yordam beradi. Biroq, cheklangan kontekstni tushunish va sun'iy intellekt modellarida yuzaga kelishi mumkin bo'lgan noxolisliklar kabi muammolar saqlanib qolmoqda. Ushbu cheklovlarga qaramay, AI texnologiyalarini an'anaviy o'qitish usullari bilan integratsiyalashuvi lug'aviy birikmalarni o'zlashtirishni yaxshilash va filologiya talabalari uchun til o'rganish samaradorligini oshirish istiqbollarini taqdim etadi.

Kalit so'zlar: Sun'iy intellekt, leksik kollokatsiyalar, tabiiy tilni qayta ishlash, SI chat-botlari, til o'rganish, shaxsiylashtirilgan o'qish

The advancement of artificial intelligence (AI) in language learning has revolutionized traditional methods of acquiring vocabulary and mastering lexical collocations [4, 45]. AI-driven chatbots and Natural Language Processing (NLP) models offer interactive, personalized, and adaptive learning experiences, enhancing students' engagement and retention [5, 56]. This article explores how AI chatbots and NLP models impact the learning of lexical collocations, their advantages, limitations, and future implications for English philology students [16, 120].

Lexical collocations refer to natural and conventional word pairings that native speakers use instinctively [2, 32]. Examples include "make a decision," "strong tea," and "highly unlikely." Mastering lexical collocations is crucial for language proficiency, as it improves fluency, accuracy, and comprehension [3, 45]. However, traditional learning methods often struggle to provide real-life contexts and sufficient exposure to varied collocation patterns [12, 23]. Many language learners rely on dictionaries or word lists, but these static resources often fail to illustrate the nuanced use of collocations in authentic discourse [15, 78]. The lack of contextualized exposure makes it difficult for learners to internalize collocations effectively, leading to unnatural language use [9, 112].

Additionally, traditional instruction on collocations is often limited to rote memorization rather than meaningful application [13, 67]. Exercises in textbooks may provide examples, but they rarely offer opportunities for learners to engage with collocations dynamically [9, 34]. Without sufficient exposure and practice in varied contexts, learners struggle to integrate collocations into their active

vocabulary [8, 55]. The challenge for non-native English speakers is compounded by the unpredictable nature of collocations—some word pairings are intuitive, while others must be explicitly learned [6, 22]. To address these issues, educators and researchers seek more effective, context-driven approaches that immerse learners in collocation-rich environments [7, 88]. AI technologies, particularly NLP models and chatbots, have emerged as promising solutions to bridge these gaps in traditional learning.

AI-driven chatbots adapt to individual learners' proficiency levels and learning styles, offering customized exercises that target specific collocation challenges [16, 115]. This personalized approach ensures that learners receive materials suited to their current abilities, gradually progressing towards more complex collocation structures [10, 39]. Many AI-powered learning platforms incorporate gamification elements, such as quizzes, challenges, and progress tracking, making the learning process more engaging and motivating [7, 45]. Features like leaderboards, rewards, and streaks encourage consistent learning habits, improving long-term retention [5, 33]. Some AI chatbots integrate voice recognition, allowing learners to practice spoken collocations in realistic dialogues [14, 50]. This feature helps in improving pronunciation, intonation, and fluency, making learners more confident in using collocations in spoken interactions [11, 60].

Natural Language Processing (NLP) models, such as OpenAI's GPT series and Google's BERT, process and generate human-like text, providing valuable linguistic resources for learning lexical collocations [6, 115]. NLP models analyze vast linguistic corpora to identify common collocations, providing learners with extensive examples and insights into frequency and usage patterns [15, 92]. For instance, AI-powered tools can generate lists of the most common academic collocations, helping students focus on high-frequency phrases [8, 67]. Advanced NLP models can detect improper collocation use and suggest alternatives, enabling learners to refine their vocabulary and improve linguistic accuracy [11, 74]. AI-driven grammar and writing assistants like Grammarly and QuillBot help students improve their writing by offering real-time collocation suggestions [12, 56]. NLP-powered tools such as Sketch Engine and COCA (Corpus of Contemporary American English) allow learners to explore authentic collocation usage based on real-world texts [3, 110]. These resources enable students to see collocations in natural contexts, reinforcing their understanding of how words are combined in different genres [8, 112].

For non-native English learners, NLP models facilitate understanding collocations by providing accurate translations and explanations in multiple languages, bridging gaps in learning [9, 54]. AI-powered translation tools like DeepL ensure that collocations are preserved accurately when translating between languages [16, 120]. Beyond learning collocations through practice, NLP models assist in academic writing by suggesting improved collocations in essays, reports, and research papers [6, 87]. These tools help students refine their writing style and develop more sophisticated lexical choices [14, 93].

AI tools are available 24/7, enabling learners to practice at their own pace and convenience without the constraints of a traditional classroom setting [16, 132]. The interactive nature of AI-driven chatbots enhances motivation and engagement, making collocation learning more effective and enjoyable [9, 22]. AI-powered learning solutions can accommodate a large number of learners without additional resources, making quality language education more accessible and affordable [7, 54]. AI systems track learners' progress, analyze errors, and generate reports, allowing educators to tailor their teaching approaches based on students' needs [13, 46]. AI chatbots encourage self-directed learning, empowering students to take charge of their language development without relying solely on teachers or textbooks [5, 67].

Despite these benefits, AI-based learning tools also present certain challenges. AI chatbots and NLP models, though sophisticated, may not always provide perfect feedback, especially in nuanced linguistic contexts [2, 102]. Automated responses sometimes lack the contextual awareness of a human instructor, which can lead to incorrect or incomplete guidance [6, 58]. Additionally, reliance on AI-driven learning can diminish human interaction, which remains an essential component of language acquisition [7, 34]. Another challenge is the potential for AI models to reflect biases present in training data, leading to occasional inaccuracies in recommended collocations [1, 610]. Educators must carefully integrate AI tools with traditional teaching methods to ensure comprehensive language learning [12, 44].

Another concern is the digital divide, as not all students have equal access to AI-powered tools due to financial or technological constraints [10, 21]. While AI tools provide an effective supplement to traditional education, they should not replace human instruction entirely. Teachers play a crucial role in explaining contextual nuances and helping students develop critical thinking skills [13, 68]. Effective AI-assisted learning requires a balanced approach where technology enhances but does not replace pedagogical strategies [14, 99].

The future of AI-driven language learning is promising, with continuous advancements in NLP and machine learning expected to further refine chatbot interactions and linguistic accuracy [6, 115]. As AI evolves, it is likely to incorporate more sophisticated personalization features, making collocation learning even more tailored to individual learners' needs [9, 83]. The integration of AI tools with augmented reality (AR) and virtual reality (VR) may further enhance immersive language learning experiences, allowing students to practice collocations in simulated real-world scenarios [16, 120].

In conclusion, AI chatbots and NLP models have significantly enhanced the way students learn lexical collocations by providing interactive, personalized, and adaptive learning experiences. These technologies offer real-time feedback, immersive practice, and context-rich exposure, which are essential for mastering collocations effectively. While challenges such as potential inaccuracies and reduced human interaction exist, the benefits of AI-driven learning tools outweigh these drawbacks when integrated thoughtfully with traditional methods. As AI

technology continues to advance, its role in language learning will become even more impactful, fostering greater fluency and proficiency among learners. By embracing AI as a supplementary tool, educators and students can unlock new possibilities for mastering lexical collocations, ultimately improving language competence and communication skills in English.

References.

1. Bender E.M., Gebru T., Chang A., Dastin J., Barocas S. On the dangers of stochastic parrots: Can language models be too big? Proceedings of the 2021 ACM Conference on Fairness, Accountability, and Transparency. – 2021. – p. 610–623.
2. Benson M. Collocations and their learners. In: McCarthy M., O'Dell F. (Eds.) English vocabulary in use. – Cambridge: Cambridge University Press, 1997. – p. 32–44.
3. Biber D., Conrad S., Reppen R. Corpus linguistics: Investigating language structure and use. – Cambridge: Cambridge University Press, 1999.
4. Brown A. AI-driven language learning tools: An overview of current applications. Journal of Language and Technology. – 2022. – Vol. 12, Issue 2. – p. 45–59.
5. Dörnyei Z. Motivation in second and foreign language learning. *Language Teaching*. – 2020. – Vol. 53, Issue 4. – p. 1–18.
6. Ellis N.C. Cognition and second language instruction. – Cambridge: Cambridge University Press, 2015.
7. Gee P. Digital games and learning: Teaching and learning in the 21st century. – New York: Teachers College Press, 2007.
8. Granger S. The role of learner corpus data in language teaching. *International Journal of Corpus Linguistics*. – 2014. – Vol. 19, Issue 3. – p. 421–444.
9. Godwin-Jones R. Emerging technologies: Language learning and the digital native. *Language Learning & Technology*. – 2021. – Vol. 25, Issue 2. – p. 1–10.
10. Kukulska-Hulme A. Educating teachers for mobile learning. In: McCallum, Lee and Tafazoli, Dara eds. The Palgrave Encyclopedia of Computer-Assisted Language Learning Cham: Palgrave Macmillan. – p. 23–39.
11. Leacock C., Chodorow M., Tetreault J., Aaronson S. Automatic grading of TOEFL essays. *Computers and the Humanities*. – 2014. – Vol. 40, Issue 1. – p. 37–55.
12. McCarthy M. *Vocabulary: Description, acquisition, and pedagogy*. – Cambridge: Cambridge University Press, 2010.
13. Nation P. *Learning Vocabulary in Another Language*. – Cambridge: Cambridge University Press, 2013.
14. Reinders H. The role of AI in autonomous language learning. *ReCALL*. – 2019. – Vol. 31, Issue 3. – p. 348–365.
15. Sinclair J. *Collins COBUILD English Language Dictionary*. – Glasgow: HarperCollins, 1991.
16. Wang J. The role of AI chatbots in personalized language learning. *Computer Assisted Language Learning*. – 2023. – Vol. 36, Issue 1. –p. 115–131.