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ШІ-ЗГЕНЕРОВАНИЙ КОНТЕНТ ЯК ІНСТРУМЕНТ УДОСКОНАЛЕННЯ ЛІНГВІСТИЧНОЇ КОМПЕТЕНТНОСТІ ЗДОБУВАЧІВ ОСВІТИ

Анотація. У статті досліджено перспективи використання штучного інтелекту (ШІ), зокрема чат-ботів на основі технології GPT, для навчання мовних дисциплін. Авторка аналізує вплив таких інструментів на лінгвістичну компетентність студентів, а також розглядає проблеми та переваги їх застосування в освітньому процесі.

Мета й завдання дослідження зумовили використання комплексу теоретичних, емпіричних і візуально-графічних методів. Для встановлення ступеня розкриття проблеми використання штучного інтелекту під час вивчення мовних освітніх компонентів використано методи аналізу наукових джерел, синтезу, узагальнення, абстрагування, зіставлення. Для визначення лінгвістичних, структурних і семантичних маркерів ШІ-згенерованого тексту застосовано описовий метод, методи спостереження, аналізу студентських робіт. Для з'ясування позиції здобувачів освіти щодо піднятої проблеми використано методи анкетування та математичної обробки результатів. Для наочного відображення результатів опитування застосовано візуальні методи (побудова діаграми).

У контексті виконання завдань дослідження проаналізовано сучасні наукові праці у галузі освіти щодо розкриття проблеми використання інструментів ШІ в межах освітніх компонентів «Сучасна українська мова з практикумом» і «Українська мова за професійним спрямуванням». З'ясовано, що ґрунтовні дослідження в цьому напрямі досі не зреалізовані.

Авторка наголошує на необхідності змін у методиці викладання для ефективного використання технологій ШІ. Важливими кроками є впровадження завдань, що допомагають студентам виявляти помилки у текстах, згенерованих штучним інтелектом. З цією метою у статті сформовано перелік лінгвістичних, структурних і семантичних маркерів ШІ-згенерованого тексту. Окремо розглянуто ризики, пов'язані з використанням ШІ, зокрема проблеми академічної доброчесності та можливе зниження самостійності студентів.

Ключові слова: лінгвістична компетентність, ШІ-згенерований контент, методика навчання, українська мова за професійним спрямуванням, сучасна українська мова з практикумом, освітній компонент, академічна доброчесність, мовна освіта.

AI-GENERATED CONTENT AS A TOOL FOR IMPROVING THE LINGUISTIC COMPETENCE OF STUDENTS

Abstract. The article explores the prospects of using artificial intelligence (AI), in particular chatbots based on the GPT technology, to teach language disciplines. The author analyzes the impact of such tools on students' linguistic competence, as well as the problems and advantages of their use in the educational process.

The aim and tasks of the study have led to the use of a set of theoretical, empirical, visual and graphical methods. To determine the degree of understanding of the problem of using artificial intelligence in the study of language-related educational components, the methods of analysis of scientific sources, synthesis, generalization, abstraction, and comparison have been used. To determine the linguistic, structural, and semantic markers of the AI-generated text, the descriptive method and the methods of observation and analysis of student works have been used. To find out the position of students on the problem, the methods of survey and mathematical processing of the results have been used. Visual methods (diagram construction) have been used to visualize the results of the survey.

In the context of fulfilling the objectives of the study, the author analyzes modern scientific works in the field of education to reveal the problem of using AI tools within the educational components «Modern Ukrainian Language with a Practicum» and «Ukrainian Language for Professional Purposes.» It has been found that in-depth research in this area has not yet been implemented.

The author emphasizes the need for changes in teaching methods for the effective use of AI technologies. Important steps include the introduction of tasks that help students identify errors in AI-generated texts. To this end, the article compiles a list of linguistic, structural, and semantic markers of AI-generated text. The risks associated with the use of AI, in particular, the problems of academic integrity and the possible reduction of students' independence, are also considered.

Keywords: linguistic competence, AI-generated content, teaching methods, Ukrainian Language for Professional Purposes, Modern Ukrainian Language with a Practicum, educational component, academic integrity, language education.

INTRODUCTION



The problem formulation. Language education in the context of digitalization and dynamic informatization of society is of paramount importance, as, on the one hand, it provides global access to up-to-date information in any field of science or technology, and on the other hand, it expands the possibilities of self-presentation in the information space, which significantly affects the level of educational and professional self-realization of the individual. In this context, the problem of forming the linguistic competence of students who have free access to and appropriate skills in working with information technology and use it to create texts, develop projects, and perform communication tasks is becoming more relevant. Despite the positive aspects of students' readiness to integrate information technology skills into the language training process, we observe negative trends, including the use of artificial intelligence to write creative works and scientific texts in violation of the rules of academic integrity, the inability to identify markers of AI-generated content, to edit and coordinate the structure and semantics of the text, etc. The methodological system of teaching such educational components as Modern Ukrainian Language with a Practicum and Ukrainian Language for Professional Purposes to future experts in all fields, including pedagogy, needs to be transformed accordingly.

Analysis of recent research and publications. Studies of the potential of artificial intelligence in education have been conducted since its development and are still at an active stage. This increased attention is due to the somewhat contradictory perception of the subject of research, which manifests itself in the undeniable benefits for people and at the same time in certain threats regarding the moral component, manipulation, substitution of concepts, privacy issues, etc. The analysis of the scientific information space has revealed that it contains works that can be divided into two groups: 1) studies of the general features of artificial intelligence, its positive and negative manifestations, current development and prognostic trends; 2) studies of the sectoral specifics of artificial intelligence application (in military, medical, economic, agricultural, trade, management and other sectors).

In the scientific studies included in the first group, we can trace the relative coherence of the opinions of scientists about the impossibility of stopping the development of artificial intelligence (hereinafter AI) in view of its progressiveness and the need for enhanced control over its functioning to prevent undesirable results (V. Hrytsyshyn, N. Habrusieva; M. Yefremov, Yu. Yefremov; A. Dubchak, Y. Lytvynenko; S. Sharov; O. Dobrovol'ska, V. Shtanko; D. Pchelianskyi, S. Voinova, et al.). Studies focused on the specifics of AI application in certain fields, including education, focus on the theoretical and practical principles of using AI systems in mastering educational components and forming a number of competences of students. In the context of language education, the problem of using AI in the process of teaching a foreign language has been most deeply studied (N. Akopiants; A. Melnyk; T. Leleka; I. Romanyshyn, T. Chukhno, N. Fyisa; R. Kalko, G. Dekusar, K. Lahun; L. Vekhva; L. Viktorova, A. Kocharian, K. Mamchur, O. Korotun; G. Bahriy; T. Kotsko; A. Lyseiuk; A. Vykliuk; N. Karpusenko; O. Shevchenko, O. Ohurtsova; O. Koliasa; O. Suprun, O. Zubenko; M. Kademiia, K. Vizniuk, A. Polishchuk, S. Dolynnyi, et al.). Regarding the use of AI tools in studying the Ukrainian language at higher education institutions, the thematic content of the scientific information space is significantly limited. There are publications devoted to the use of AI in the process of learning Ukrainian as a foreign language, the study of the potential of GPT-3 for linguistics, and the prospects for its use in the process of language training of philologists. In particular, S. Domnich summarizes that «the use of artificial intelligence in the practice of teaching Ukrainian as a foreign language can significantly improve the quality of teaching and contribute to more successful language acquisition by students» (Domnich, 2023). Exploring the challenges and prospects of using ChatGPT in the training of philologists, O. Ostapovych, N. Ostapovych and Yu. Mazurenko emphasize, «Live communication should return to the academic community in the age of artificial intelligence and neural networks» (Ostapovych O., Ostapovych N. & Mazurenko Yu., 2023). B. Pysarenko and I. Danyliuk, analyzing the prospects of AI for linguistics, note, «The significant advantages of the generative pre-trained transformer of the third generation 'GPT-3' include the ability to write any type and genre of texts, both original and in the style of certain people, analyze huge corpora of texts in minutes, make translations into other languages, help both linguists and workers of related specialties in performing certain time-consuming tasks...» (Pysarenko & Danyliuk, 2021).

The research work conducted to address the problem of using AI within the educational components Modern Ukrainian Language with a Practicum and Ukrainian Language for Professional Purposes has shown that no thorough research in this area has been implemented yet (Humeniuk, 2021). The use of AI-generated content in student projects is a reality that cannot be denied and, at the same time, cannot be ignored. Today, the quality of language education depends on the ability of academic staff to adapt teaching methods to the available information technology achievements, making the most of them for the benefit of students.

THE AIM AND RESEARCH TASKS

The relevance of the problem has led to the aim of the study: an analysis of the potential of AI-generated content for improving the linguistic competence of students of pedagogical institutions of higher education.

The aim can be achieved by solving the following tasks:

- 1) a thorough analysis of modern scientific research in the field of education to reveal the problem of using AI tools within the educational components Modern Ukrainian Language with a Practicum and Ukrainian Language for Professional Purposes;
- 2) identifying linguistic, structural, and semantic markers of AI-generated text;
- 3) study of specific methods and techniques of using AI-generated content to improve the linguistic competence of higher education students.

RESEARCH METHODS



The aim and tasks of the study have led to the use of a set of theoretical, empirical, visual and graphical methods. To determine the degree of understanding of the problem of using artificial intelligence in the study of language-related educational components, the methods of analysis of scientific sources, synthesis, generalization, abstraction, and comparison have been used. To determine the linguistic, structural, and semantic markers of the AI-generated text, the descriptive method and the methods of observation and analysis of student works have been used. To find out the position of students on the problem, the methods of survey and mathematical processing of the results have been used. Visual methods (diagram construction) have been used to visualize the results of the survey.

RESULTS OF THE RESEARCH

«ChatGPT is a variant of the GPT-3 artificial intelligence language model» (Brown et al., 2020), specifically designed to generate human text in a conversational style, which «was introduced in 2021» (Debby R. E. Cotton, Peter A. Cotton & J. Reuben Shipway, 2024). According to an anonymous survey conducted among students of the Faculty of Pedagogy at Vasyl Stefanyk Precarpathian National University, this AI tool is most often used by students to create texts of different styles and find answers to theoretical questions in academic disciplines. Fig. 1 shows the survey results in %.

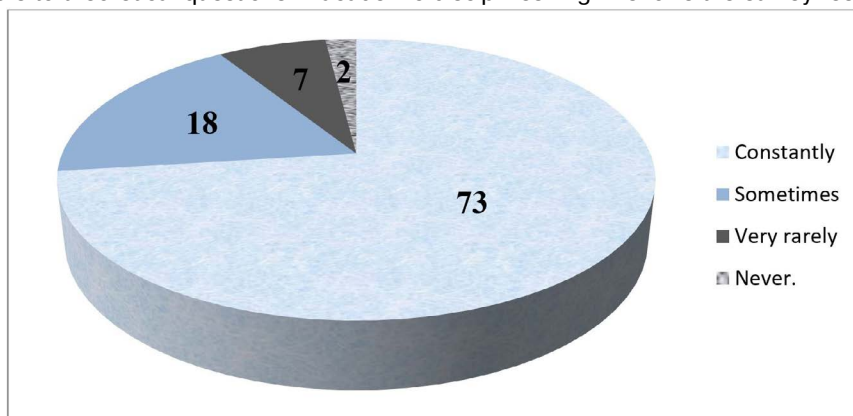


Fig. 1. Results of the student survey on the use of ChatGPT to complete tasks

As can be seen in Fig. 1, 73 % of the respondents say that they use ChatGPT to complete assignments on a regular basis, across all academic disciplines. 18 % of the respondents say that they use ChatGPT only when they have little time to complete an assignment or the task is too long. 7 % of students, according to the survey, do not trust artificial intelligence to complete assignments but check and correct what they have done with its help or use it out of curiosity. And only 2 % of the respondents say they have never used such a technological asset as ChatGPT.

Since completing assignments in Modern Ukrainian Language with a Practicum and Ukrainian Language for Professional Purposes has its own specifics, several separate questions were included in the survey to find out students' opinions on the potential of ChatGPT to help them achieve high results in these disciplines. The answers to these questions were divided into two vectors depending on the average academic performance of the respondents. Thus, students with high (and above average) academic performance answered negatively to the question «Is it possible to complete language assignments using ChatGPT?», emphasizing the significant number of errors in such works, the need for careful checking, and supplementation, which requires much more time than independent work. Students with low (and below average) performance are convinced that the tasks completed by ChatGPT are of sufficient quality. The question «In which tasks of Modern Ukrainian Language with a Practicum does ChatGPT make the most mistakes?» also received mixed responses. From students with high academic performance: tasks on phonetics (phonetic transcription, accentuation), grammar (morphological and syntactic analysis), stylistics (inappropriate vocabulary, a large number of russianisms, violation of the logic of presentation, etc.). The other group of respondents said that minor mistakes occur in all types of tasks, but in general the work is done well. This answer primarily reflects the complexity of the question itself for this group of respondents, and their inability to see and categorize the shortcomings in the papers.

Since this AI tool is capable of performing a wide range of language tasks, including text generation and editing, translation, and operations with the finished text (summarizing, generalization, planning, abbreviating, supplementing, etc.), it is necessary to make certain changes to the teaching methods in order to improve the quality of study within the educational components Modern Ukrainian Language with a Practicum and Ukrainian Language for Professional Purposes.

In our opinion, the initial stage in this process can be an assignment to independently search for linguistic, structural, and semantic markers of an AI-generated text. To do this, we use ready-made term papers or qualification papers from previous years or ask students to generate a text on a particular topic and analyze it for such markers. If a particular feature is repeated several times in one text and is also present in other generated texts, we consider it a marker. The linguistic features of an AI-generated text based on the analysis of student works include:

- Frequent application of commonly used words, avoiding highly specialized terms.



- Use of wording that tries to «balance» or reconcile positions, for example: on the one hand... on the other hand, in most cases, etc.
- Frequent, sometimes excessive, use of coherence markers, namely: first, in addition, in summary, therefore, thus, in general, etc.
- Abuse of the conjunction «and,» ignoring synonymous conjunctions.
- Inconsistency of gender endings caused by the fact that one word belongs to different genders in different languages.
- Use of words that are not typical of the Ukrainian literary language (e.g., Russianisms).
- Repetition of similar constructions in different text fragments.
- Excessive use of the verb «can» in various forms, e.g.: the teacher can suggest, teachers can use, students can do, etc.
- Overuse of pointing words such as: here are examples, here is a list, here are exercises, here are a few aspects, etc.

Structural markers of AI-generated text are detected:

- A clear classical sequence of parts: introduction, main part, conclusion, which is repeated in different topics.
- Dividing into paragraphs even if there was no such requirement in the task.
- Naming the items in the list in a nominal sentence, followed by an explanation.

Semantic markers are the most difficult to identify. In order for educators to identify a particular semantic feature as a marker, they must analyze a larger number of texts. Semantic markers of AI-generated text include:

- A generalized presentation of information, paraphrasing, repeating in other words.
- Presenting the same idea several times in a slightly modified form.
- Excessive explanation of simple, obvious things, excessive detail, accumulation of excessive information.
- The style of presentation is neutral, even formal.
- The absence of emotionality, subjective judgments, and the author's individuality in the statements made.

Students' independent work on detecting GPT text markers allows them to develop not only the ability to see and avoid such cases, but also a deep awareness of the «technological nature» of such texts, the obviousness of their artificial creation, and thus reduce the desire to use ChatGPT for higher education.

The use of ChatGPT to develop students' linguistic competence is fraught with many dangers, as the probability of errors in the generated information is currently quite high, and untrained users are unable to recognize them. At the same time, ChatGPT provides ample opportunities to improve linguistic competence in the Ukrainian language and increase its level. First of all, students can feel like a teacher, identifying mistakes in generated texts or completed tasks, which contributes to a deeper understanding of spelling and punctuation principles, grammatical categories, etc. In addition, creating tasks in any section of Ukrainian linguistics with GPT allows you to get acquainted with the methodological aspects of language teaching and basic didactic principles in a practical way, which is especially important for students of higher pedagogical education.

In the context of Ukrainian Language for Professional Purposes, the linguistic competence is the core of the competence paradigm of this discipline (Humeniuk, 2019; Humeniuk, 2022). Aimed primarily at the formation of competent professional (oral and written) speech of future specialists, the methodological system of teaching Ukrainian Language for Professional Purposes is based on mastering professional terminology, developing the ability to work with professional texts of different styles, transform and structure scientific texts, edit them, and create small-scale scientific texts on their own. In these areas of work, ChatGPT can be used as an idea generator, a platform for modeling, designing, selecting examples, etc. Note that completing creative tasks (writing texts) and tests using GPT should be treated as a violation of academic integrity.

CONCLUSIONS AND PROSPECTS OF FURTHER RESEARCH

Thus, digitalization and the introduction of artificial intelligence have a significant impact on language education, particularly in the context of developing students' linguistic competence. The use of AI, in particular tools such as ChatGPT, contributes to the efficiency of learning by automating routine tasks, creating learning materials, and helping to edit texts. At the same time, there are risks associated with non-compliance with academic integrity, errors in the generated content, and undesirable replacement of the traditional learning process.

Given the high potential of AI to create texts, it is important to teach students to identify linguistic, structural, and semantic markers of such texts. The use of GPT-based chats in teaching allows students to complete tasks quickly, but requires careful checking of the results. Therefore, it is important to integrate AI as a tool to improve learning outcomes, but not to replace traditional teaching methods. AI can be a powerful tool for enhancing language education, but its use requires control, adaptation of teaching methods, and development of students' skills in critical analysis of content. The potential of AI to improve the linguistic competence of higher education students necessitates its deeper study and the development of specific methodological recommendations for integrating AI-generated content into teaching methods for certain sections and topics of language-related educational components. This is where we see the prospects for further research.



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