

ChatGPT in Native Language Teaching: Local Ukrainian Experience

N. Hrona*, O. Semenog**, I. Kharchenko***, M. Ostroha**, R. Momot** and O. Semenikhina**

* T.H. Shevchenko National University “Chernihiv Colehium”, Chernihiv, Ukraine

** Sumy State Pedagogical University named after A. S. Makarenko, Sumy, Ukraine

*** Sumy National Agrarian University, Sumy, Ukraine

mariia.ostroha@fizmatsspu.sumy.ua

Abstract – Artificial intelligence (AI) in education has significantly shifted the emphasis from traditional teaching to individual learning. AI technologies, such as chatbots, text generators, and automatic assessment platforms, open up new perspectives for flexible language learning for both teachers and students. While large language models are becoming more and more helpful in teaching foreign languages, as evidenced by a significant number of studies, the lack of established methods for using AI in teaching the native language can lead to a decrease in the efficiency of the educational process or even to harmful consequences of its use. The study aims to analyze the experience of using AI, particularly ChatGPT, in teaching the native (Ukrainian) language. We will systematize the practices of using AI in language education, describe our experience of using ChatGPT in teaching Ukrainian, and present the results of surveys evaluating the use of ChatGPT in teaching the native language to students of different Ukrainian universities.

Keywords – artificial intelligence, ChatGPT, native language teaching, IT, language education, education.

I. INTRODUCTION

Artificial intelligence (AI) has shifted the emphasis in the educational field. Interactive methods have replaced traditional teaching methods [1]. AI technologies, such as chatbots, text generators, and automatic assessment platforms, have identified the prospects for a flexible and practical approach to language learning. A review of scientific results in recent years shows that AI simplifies the process of assessing knowledge [2]. AI systems can adapt to the complexity of tasks, which prevents the student from being overwhelmed [3]. This contributes to a more stable and positive attitude of students toward learning [4]. Scientists have also confirmed [5] that the use of AI can have a positive effect on motivation to learn. Interactive games and simulations created with the help of AI can make the learning process more interesting [6]. In addition, AI can provide students with immediate feedback on their answers, contributing to the quick correction of errors and improved understanding of the material [7].

However, the scientific community perceives the use of AI ambiguously. The involvement of AI raises questions about the ethical aspects of using AI (in particular, protecting students' data) and preventing bias in educational materials [8], about equal access to AI technologies [9], and others. There are also divergent opinions about the choice of AI models and learning tools based on them: ChatGPT [10], GenAI [11], ICALL [12], etc.

An analysis of research practices shows that teachers often use AI intuitively or "spontaneously" without a clear understanding of the capabilities and limitations of these technologies, their methodological validity, and the feasibility of using them in the learning process. An analysis of native language teaching practices shows that today, AI systems can automatically check written works, detect grammatical and spelling errors, and assess the text's overall quality [13]. AI allows teachers to design individual work with students [14]. However, the lack of established methods for using AI in education can lead to a decrease in the effectiveness of the educational process or even to harmful consequences of its use. Therefore, this study aims to analyze the experience of using AI in teaching the native (Ukrainian) language. We will (1) systematize the practices of using AI in language education, (2) describe our own experience of using ChatGPT in teaching the Ukrainian language, and (3) present the results of surveys to assess the use of ChatGPT in teaching the native language of students of various universities in Ukraine.

II. PRACTICES OF USING AI IN LANGUAGE EDUCATION

Scientists [15] analyzed publications from the scientometric database of the BoS on AI technologies and algorithms used in language education. They found that AI in language education primarily uses ITS (intelligent learning system) and NLP (natural language processing). At the same time, AI is most often used for learning, data mining, machine learning, and syntactic analysis of natural language. The main areas of application of AI are writing, reading, and vocabulary replenishment. The study [16] shows that AI can provide linguistic diversity, create a personalized online learning environment, and correct errors by giving instant feedback. Among the various AI tools, ChatGPT occupies a special place in the context of native language learning [17]. Its ability to generate texts, answer questions, and conduct dialogues makes it a valuable tool for speaking and writing practice [2] and a tool to enhance learning productivity [5]. Teachers can use ChatGPT to create individual tasks, provide feedback, and simulate various communicative situations [18]. The research [10] summarizes their practice of using ChatGPT since the beginning of 2022 and concludes that AI is a tool for the transition from dependent relationships between subjects of the educational process (teacher and student) to the level of counseling and dialogue (the dominant role of the teacher is leveled). Therefore, researchers emphasize the importance of proactive teacher training.

A systematic review [19] identified five possibilities for using AI in professional English language teaching: (1) human-like conversations, (2) personalized feedback, (3) image-to-text in English, (4) creation of personalized didactic materials, and (5) recognition and analysis of emotions. The authors emphasize that the first three possibilities have the most effect on student learning outcomes (improving behavioral, cognitive, and affective outcomes) but note the link between emotional support and cognitive impact. In the article [20], B. Eager and R. Brunton perceive ChatGPT as a potential source of plagiarism but conclude that language learning, enriched with artificial intelligence, produces opportunities rather than challenges for subjects of the educational process. Scientists give tips on writing queries (prompts) to obtain high-quality results from AI and analyze a practical case, illustrating AI's use to develop criteria for evaluating texts.

The study's results [21] describe the educational game "The Language of Zelda," which integrates ChatGPT to practice French through *gameplay, puzzles, and quests*. According to the authors, the game-based approach and simultaneous use of AI bridge the gap between declarative and procedural language knowledge through the immersive effect. Other research [22] confirms the effectiveness of AI-powered role-playing games for developing knowledge in the professional field. The article [23] explores the application of large language models (ChatGPT) in the development of educational board games (from the idea that ChatGPT suggests topics and mechanisms that are consistent with learning objectives to feedback on prototypes to improve game components). The authors note, on the one hand, the skill and creativity of ChatGPT, and on the other hand, they record a particular *bias of training datasets*, which affects the inclusivity of the game (inaccurate details, counter-intuitive rules, incorrect feedback).

Thus, in the global academic literature of recent years, there has been an active growth of interest in the possibilities of using generative AI for language learning. A systematic analysis of foreign literature [24] shows the active use of AI in language education: writing development, adaptive learning, error recognition, generation of exercises and educational texts, and virtual language tutors. Research papers emphasize teachers' positive attitude towards using ChatGPT in the classroom [25] and simultaneously call for critical reflection on the results [26].

The use of AI in mother tongue learning is mainly focused on literacy development, vocabulary expansion, and improved writing and reading. AI can help detect writing mistakes, automatically edit texts, analyze stylistics, and develop creative writing, such as generating essay ideas (Table 1).

TABLE I. PECULIARITIES OF USING AI FOR LANGUAGE LEARNING

Emphasis	Foreign language with AI	Native language with AI
Basic goal	Mastering a new language system, communication, and overcoming the language barrier	Deepening knowledge, literacy, writing, and reading development
Adaptability	High (personalized courses, exercises)	Less pronounced, primarily for

Emphasis	Foreign language with AI	Native language with AI
		correction and deepening
Application of chatbots	For simulating communication, practicing pronunciation	To check writing, style, and spelling
Motivation.	High (game elements, feedback, rating)	Depends on AI, less pronounced

When learning their native language, children already have a language environment, while a foreign language requires the creation of an artificial language environment, which is provided by AI technologies [27]. In foreign language learning, AI is a tool for intensive development of all skills (speaking, listening, reading, writing), while in native language learning [28], it is mainly used to deepen academic knowledge and creative skills.

Ukrainian practices of using AI extend to the study of a foreign language. Thus, the study of different ways of using ChatGPT is carried out by M. Grom [29]. The researcher believes that when using AI to write scientific papers, a large-scale search for sources on any topic and in different languages, *fast and high-quality translation* (if necessary, using foreign sources), and analysis and generalization of a large amount of data are positive. Another aspect of the use of AI in language education, *the use of "speaking robots,"* is analyzed by O. Zubenko [30], who emphasized that with speaking robots, motivation for cognitive activity increases, abstract and logical thinking develops, and learning is intensified. N. Konovalchuk [31] considers AI an assistant in creating tasks, asking questions about the text, and checking work (ChatGPT highlights and explains the error) to develop students' communication skills.

So, taking into account the mentioned and other scientific results, the use of AI by a teacher in language teaching can be implemented for: generation of didactic materials (creation of exercises/tasks aimed at eliminating linguistic errors of students; texts of different styles to understand the stylistic features of language units, etc.); organization of control (generation of differentiated or individual tasks, including tests); expansion of vocabulary (selection of synonyms, antonyms, and related words) and interpretation of the meanings of words; text editing; recognition of the student's speech and correction of errors in pronunciation, as well as imitation of real conversation to improve language skills; creating language games that help you learn grammar, vocabulary, and other aspects of the language. At the same time, AI acts as a digital tool/learning tool for both the teacher and students, who perceive AI as an individual assistant who "knows everything" and can help with tasks.

III. LEARNING UKRAINIAN WITH CHATGPT

Our practice of using ChatGPT in teaching the Ukrainian language was focused on the following: development of communication skills in the native language; expansion of vocabulary; development of knowledge of morphology, syntax, etc. We used ChatGPT as an assistant for students in Ukrainian language classes. The peculiarities of the training organization were that

students had to use AI when performing tasks formulated by the teacher. Here are a few examples.

Example 1. To teach students how to effectively interact with the interlocutor to obtain complete and truthful information, the teacher asked students to interview a hypothetical interlocutor and write down his possible answers using an example (Fig. 1)

PROMPT.
I need to interview the director of a publishing house. Prepare an answer to the questions I want to ask: Who do you read for pleasure? Is there a book that you have not published but now regret it? Everyone has times when their resources are exhausted. Where do you renew yourself?

• **AI's answer**
The answers to these questions may vary depending on the particular director, his or her personal preferences, and the specifics of the publishing house. However, here are some possible answers to help you prepare for the interview:

• Who do you read for pleasure?

• Possible answers: "For pleasure, I prefer classical literature, especially European novels of the nineteenth century. However, I also enjoy reading contemporary authors. I am interested in different genres: from psychological fiction to science fiction."

Figure 1. Illustration for example 1

Tasks of this type were allotted up to 5 minutes. Since the prompt was written by different students fluently, the AI responses that depended on the wording of the prompt were different. A lively discussion of speech responses helped to develop communicative skills. Students positively perceived such tasks; they liked exchanging ideas about their books, further expanding their reading horizons.

Example 2. The teacher invited students to create a "Dictionary of the Future" on a topic to enrich their vocabulary and develop critical thinking skills. One of the options for the answer from AI, which the student received, is shown in the figures (Fig. 2).

PROMPT. I work as a teacher in 2035. Create a dictionary of the future for a teacher of the Ukrainian language.	AI tutor	AI that personalizes the learning process for each student, adapting the material to their level of knowledge and learning pace.
	Virtual laboratory of the Ukrainian language	An interactive virtual space where students can practice language skills in different situations (e.g., a virtual conversation).
	Metaverse of the Ukrainian language	A virtual space where students can immerse themselves in Ukrainian culture, communicate with virtual characters, and participate in various game activities.

Figure 2. Part of the AI response to example 2

We paid attention to the word formation of new terms and their spelling. Tasks of this type caused positive emotions and surprise in students about the possibility of creating new words, especially in their future profession (teacher of the Ukrainian language). At the same time, we noted the problem of not understanding (or shallow/cursory understanding) the meaning of words and turning to an explanatory dictionary or the same AI to continue learning.

Example 3. To consolidate knowledge about compound sentences, we gave students the task of

generating sentences of different types. The figures show one of the AI answers (Fig. 4).

PROMPT. *I need to find compound indicative sentences on the topic "The world of animals".*

- An animal that eats plant foods is called a herbivore.
- The forest, which is home to many rare animals, needs to be protected.
- The cat we adopted from the shelter has become a real member of our family.
- A dog that constantly wags its tail expresses its joy.
- The birds that fly away to warmer climates return to us in the spring.
- The place where the penguins live is always covered with snow and ice.

Figure 3. AI response to example 3

We drew students' attention to the models of generated sentences. Students saw that the AI promptly generated sentences. At the same time, we noted the problem: sometimes AI could not immediately provide variability in the types of compound sentences, and students understood that the answers generated by AI would not always clearly correspond to the task.

Example 4. To enrich the vocabulary and memorize the spelling of words, we used the task of creating a "museum of words." An example of a student prompt and the generated response is shown in Fig. 4.

PROMPT. I need to create a museum of the word "ginseng".	Etymology	The origin of the word "ginseng", its roots and transformation
	Geography	Places of origin, legends and beliefs from these regions
	Medicine and pharmacology	The use of ginseng in medicine, its healing properties
	Culture and art	Depictions of ginseng in painting, literature, and film

Figure 4. Part of the AI response to example 4

Students had to pay attention to each AI recommendation, which made it possible to focus the student's attention on the image of this word in different directions (categories/industries) and promote mechanical memorization of the word and its spelling.

Example 5. To learn how to distinguish between the service parts of speech and understand the purpose of their use, we asked students to generate visual models of different parts of speech. Students had to explain the image's content, justifying the logic of AI thinking. Tasks of this type simultaneously develop students' knowledge of language (morphology), communication (speech development), and critical thinking. A positive aspect of this task was the integration of different language sections. However, visualization did not always reflect the defining (characteristic) features of a part of speech: often, it was an "artistic" rather than a "linguistic vision."

According to subjective assessments of teachers, using these and similar tasks contributed to improving educational outcomes and enriched the process of teaching the Ukrainian language, simplified the organization of the digital educational environment, and strengthened the motivation and involvement of students in learning.

IV. STUDENT ASSESSMENTS OF CHATGPT AS A NATIVE LANGUAGE LEARNING TOOL

We conducted a survey (2024) among students of the National University "Chernihiv Collegium" named after T.G. Shevchenko (28 people, 1st year), Sumy State Pedagogical University (32 people, 1-3 courses), and Sumy National Agrarian University (28 people, 1-2 courses). The average age of the survey participants is 19.7 years; 82% (72) are girls and 18% (16) are boys. The survey investigates students' subjective perception of artificial intelligence as a tool for learning their native language.

Question 1. *Do you use ChatGPT to prepare for Ukrainian language classes?* The analysis of the answers showed that 8% of respondents answered "No," 40% used them for informational purposes, and 52% said "Yes." Therefore, only one in every ten respondents does not use AI in preparation for classes.

Question 2. *Do you like learning your native language using ChatGPT in the classroom?* The analysis of the answers showed that 49% of respondents answered "yes," 43% - "no," and 8% were undecided but noted that they better assimilate information from the textbook. Thus, every second student perceives AI as an interesting tool for learning the Ukrainian language (to improve grammar, expand vocabulary, and practice speaking), and only four out of ten students believe that learning a different language is not needed by AI but by live communication in the classroom.

Question 3. *What tasks with ChatGPT in Ukrainian lessons do you like the most?* The analysis of answers showed that a third of respondents (34%) like chats (conversations) with a virtual interlocutor; 47% of respondents like tasks to enrich vocabulary and find out the meaning of words; 7% of students noted exercises on the use of grammatical rules (especially exercises on declension of numerals); 12% of students - tasks with visual elements.

Question 4. *Do you think ChatGPT develops communication skills in your native language?* The analysis of the answers showed that 49% of respondents answered "yes," 22% answered "no," and 29% answered "not always." Therefore, almost half of the respondents do not perceive AI as a tool for developing communication skills. When communicating with students, we found the basis of such a distribution: "AI does not always recognize the hidden nuances of speech expression, humor, or irony," and "its answers are emotionless."

Question 5. *Do you consider it appropriate to use AI to teach your native language (in the context of future professional activities)?* Students' answers were divided: 64% answered "yes," 31% of respondents believe that AI is not a tool for learning, and 5% answered "no." Thus, most respondents perceive AI as an effective tool for learning and teaching their native language. Still, a third perceive AI only as a tool that complements but does not replace traditional teaching methods.

Question 6. *Do you feel the negative aspects of using ChatGPT when learning your native language?* The analysis of the answers showed that 7% of respondents answered "yes," 91% answered "no," and 2% answered

"not always." Therefore, every 10th respondent experienced at least once a negative result of using AI in learning their native language. Among the answers were "AI gave the wrong answer, and I received a negative assessment," and "Excessive dependence on AI does not allow me to learn."

Question 7. *Can you always trust ChatGPT's answer?* An analysis of the answers showed that 78% trust AI, 15% do not always, and 7% answered "no." So, only every fifth student understands that AI answers should be treated critically.

Summarizing the survey results shows that: 92% of students have experience of using AI, more than half of them regularly; almost 50% find learning with ChatGPT interesting, but 43% prefer traditional teaching; students like vocabulary tasks and simulated dialogues the most; only 22% identify AI as a tool for developing communication, while others recognize its limitations; 78% of students trust AI responses, but 22% (almost one in five) are critical; only 7% have had negative experiences with AI, mostly related to false information or reduced independence. Overall, the survey results suggest that students who teach their native language positively perceive using AI. Most consider AI to be an effective learning tool, and at the same time, only one in five students has a critical view of the results generated by AI.

V. DISCUSSION

Our study was not aimed at assessing the development of students' academic achievements or determining the growth of their academic results. The main goal was to identify students' subjective perception of ChatGPT's capabilities in teaching Ukrainian as a native language. This approach is consistent with the modern methodological principles of qualitative educational research, where participants' individual experience, perception, and reflection in the educational process are considered significant sources of empirical data [32]. In the scientific literature on the use of artificial intelligence in education [33] emphasizes the importance of the experience of students and teachers for a comprehensive assessment of the effectiveness of innovative technologies. This approach makes it possible to identify the technical or methodological aspects of AI implementation and the pedagogical conditions for its perception, readiness for use, level of trust in the tool, etc. As M. Weller notes [34], subjective interaction with digital tools forms the basis for adapting pedagogical strategies and developing inclusive learning practices. The use of AI was primarily aimed at improving the learning process. According to the subjective impressions of teachers and students, this goal was achieved. The areas of ChatGPT use were identified by typical problems in teaching Ukrainian as a mother tongue: limited vocabulary, insufficient development of communication skills, difficulties in expressing one's own opinion, lexical errors, and fragmentary understanding of grammatical categories of parts of speech, which is critical for future philology teachers.

Although our study was exploratory and aimed at identifying the potential and limitations of using AI in mother tongue teaching (in particular, ChatGPT), it did not

involve a quantitative comparison with other digital tools. The qualitative data collected indicate a positive perception of new opportunities offered by the ChatGPT language model: individualized assistance, quick feedback, the ability to revisit a topic, etc. According to other studies (e.g. [35]), these aspects are important factors in increasing student engagement and autonomy in learning. Similar problems are also emphasized in modern publications, which highlight the need to learn how to formulate effective prompts for interacting with language models [17]

Although the use of AI has been studied mainly in the context of learning foreign languages, where its effectiveness has been repeatedly confirmed [10; 36], the use of such technologies in teaching the mother tongue, on the other hand, remains an under-researched area. Some researchers propose approaches to creating educational texts with the help of AI [20]; however, they are mostly not adapted for learning a native language. The problem of introducing AI into Ukrainian language teaching is a pressing one. One potential solution is to modernize teacher training programs. In particular, we mean the need to integrate learning outcomes into the programs, including developing skills to work with different language models to create a productive and motivating educational environment. This approach is consistent with the study's findings [12], which emphasizes the need to train teachers to integrate AI into the educational process to increase its efficiency and reduce the workload.

Survey results show that 95.7% of students in pedagogical specialties have already familiarized themselves with ChatGPT, and 73.9% have used it for various purposes. Of these, 37.4% use it frequently, and 62.6% use it sometimes. A similar trend is observed among middle and high school students: 97.2% are aware of ChatGPT, and 56.8% use it for educational purposes (21.7% often, 78.3% sometimes). In most cases, ChatGPT is used by students to complete academic tasks [37].

In contrast to students, higher education professors show a more cautious attitude toward AI technologies: only 34.5% expressed interest, and only 12.8% used AI in their professional or academic activities. The main reasons for low integration are technical limitations, limited awareness of the possibilities, and concerns about the quality, reliability, and ethics of the results generated by AI. Similar warnings are voiced in the current scientific literature. In particular, the following risks are emphasized: plagiarism and the difficulty of objective evaluation of student work [38], limited ability to empathize [39], emotional neutrality of AI [19], as well as the dissemination of uninformed, superficial, biased, or softly worded responses [11].

The international community has already begun to take steps to regulate the use of AI. In [40], the importance of developing safe, reliable, and ethical AI systems that contribute to achieving the Sustainable Development Goals was emphasized. At the same time, participants were urged to refrain from using such systems in case of a threat to human rights violations. Ukraine is also taking relevant regulatory actions: paper [41] outlines a roadmap for the responsible use of AI. The document is based on international practices and defines ethical, legal, and didactic guidelines for introducing AI in education.

Because of the above, we believe it is advisable not only to continue the experimental use of AI in teaching the native language but also to develop special courses to train teachers to use AI in the educational process. Such activities will improve the quality of language education in the context of society's digitalization.

VI. CONCLUSION

Artificial intelligence is increasingly integrated into language learning and has tangible impacts noted by all subjects of the educational process. AI allows you to create personalized didactic materials, organize immediate support and assistance, provide answers, instructions, and explanations, and simplify and automate assessment processes to monitor student progress and facilitate the work of teachers. Thanks to AI, the risk of educational gaps and inequalities in language learning is reduced. The use of AI has a positive effect on motivation to learn. With its use, the level of digital literacy and critical perception of the impact of IT on members of society increases.

At the same time, it is essential to understand that AI is only a tool that complements, but does not replace, traditional teaching methods. Educators must adapt their approaches to the capabilities of AI, providing students with the support they need. Therefore, there is a need to develop educational programs for training teachers of the native language and internship programs for working teachers, which provide for the formation of knowledge about AI and skills in its use. The combination of advanced technologies with the experience and intuition of qualified teachers is the key to the successful use of AI in teaching the mother tongue.

REFERENCES

- [1] M. Shishkina and Y. Nosenko, "Promising technologies with elements of AI for professional development of teaching", *Physical and Mathematical Education*, vol. 38, no. 1, pp. 66–71, Feb. 2023, doi: 10.31110/2413-1571-2023-038-1-010.
- [2] C. Song and Y. Song, "Enhancing academic writing skills and motivation: assessing the efficacy of ChatGPT in AI-assisted language learning for EFL students", *Front. Psychol.*, vol. 14, Dec. 2023, doi: 10.3389/fpsyg.2023.1260843.
- [3] D. Pokryshen, "Artificial intelligence in education: cases of using ChatGPT 3.5", *Physics and Mathematics Education*, vol. 39, no. 1, pp. 56–63, Feb. 2024, doi: 10.31110/fmo2024.v39i1-08.
- [4] A. Hachkevych and M. Nykolyshyn, "AI Toolkit for Diplomats", *International Science Journal of Jurisprudence & Philosophy*, vol. 2, no. 3, pp. 45–54, Aug. 2023, doi: 10.46299/j.isjpp.20230203.03.
- [5] A. M. Mohamed, T. S. Shaaban, S. H. Bakry, F. D. Guillén-Gámez, and A. Strzelecki, "Empowering the Faculty of Education Students: Applying AI's Potential for Motivating and Enhancing Learning", *Innov High Educ*, Oct. 2024, doi: 10.1007/s10755-024-09747-z.
- [6] T. T. H. Nguyen, "EFL Teachers' Perspectives toward the Use of ChatGPT in Writing Classes: A Case Study at Van Lang University", *International Journal of Language Instruction*, vol. 2, no. 3, Art. no. 3, Jul. 2023, doi: 10.54855/ijli.23231.
- [7] S. Zhytska, O. Yefimova, O. Betsko, and A. Brayevska, "Using artificial intelligence to develop "soft" skills in foreign language learning by cadets of higher educational institutions", *International scientific journal «Grail of Science»*, vol. 40, pp. 503–505, Jun. 2024, doi: 10.36074/grail-of-science.07.06.2024.082.
- [8] L.V. Kushmar, A.O. Vornachev, I.O. Korobova and N.O. Kaida, "Artificial Intelligence in Language Learning: What Are We Afraid of", *Arab World English Journal (AWEJ) Special Issue on CALL*, vol. 8, pp. 262-273, Dec. 2024, doi: 10.24093/awej/call8.18.

- [9] O. Trotsenko and N. Pyliachyk, "Development of future English language teachers' emotional intelligence in English lessons in the university", *Youth & market*, no. 9/195, Art. no. 9/195, Nov. 2021, doi: 10.24919/2308-4634.2021.243953.
- [10] H. Li and Y. Wang, "The Empowerment and Impact of ChatGPT Technology on Foreign Language Education in Colleges and Universities", in *Proceedings of 2023 6th International Conference on Educational Technology Management, ICETM 2023*, New York: Assoc Computing Machinery, 2023, pp. 29–34. doi: 10.1145/3637907.3637950.
- [11] J. Crawford, C. Vallis, J. Yang, R. Fitzgerald, and C. O'Dea, "Editorial: Artificial Intelligence is Awesome, but Good Teaching Should Always Come First.", *J. Univ. Teach. Learn. Pract.*, vol. 20, no. 7, p. 01, 2023, doi: 10.53761/1.20.7.01.
- [12] S. Pokrivcakova, "Preparing teachers for the application of AI-powered technologies in foreign language education", *J. Lang. Cult. Educ.*, vol. 7, no. 3, pp. 135–153, Dec. 2019, doi: 10.2478/jolace-2019-0025.
- [13] I. Zhukevych and O. Spiricheva, "Transformation of foreign language learning: artificial intelligence as a tool for developing students' language skills", *International Science Journal of Education & Linguistics*, vol. 3, no. 3, pp. 45–55, Jun. 2024, doi: 10.46299/j.isjel.20240303.06.
- [14] A. Kim, H. Alieksieieva, V. Khomenko, O. Nestorenko, and O. Matviichuk-Yudina, "Integration of artificial intelligence into online learning", *Youth & market*, no. 10/218, Art. no. 10/218, 2023, doi: 10.24919/2308-4634.2023.292867.
- [15] J.-C. Liang, G.-J. Hwang, M.-R. A. Chen, and D. Darmawansah, 'Roles and research foci of artificial intelligence in language education: an integrated bibliographic analysis and systematic review approach', *Interact. Learn. Environ.*, vol. 31, no. 7, pp. 4270–4296, Oct. 2023, doi: 10.1080/10494820.2021.1958348.
- [16] M. Burlak and U. Hrynova, "Development of methodological competence of future primary class teachers using innovative technologies", *Bulletin of Science and Education*, no. 1(19), Art. no. 1(19), Feb. 2024. 10.52058/2786-6165-2024-1(19)-713-724.
- [17] B. Li, X. Kou and C. J. Bonk, "Embracing the Disrupted Language Teaching and Learning Field: Analyzing YouTube Content Creation Related to ChatGPT", *Languages*, vol. 8, no. 3, Art. No. 197, Dec. 24, 2024, doi: 10.3390/languages8030197.
- [18] O. Yazlovytka, "The role of the language environment in foreign language classes", *International Science Journal of Education & Linguistics*, vol. 3, no. 2, Art. no. 2, Apr. 2024, doi: 10.46299/j.isjel.20240302.08.
- [19] Y. Liu, H. Zhang, M. Jiang, J. Chen and M. Wang, 'A systematic review of research on emotional artificial intelligence in English language education', *System*, vol. 126, p. 103478, Nov. 2024, doi: 10.1016/j.system.2024.103478.
- [20] B. Eager and R. Brunton, "Prompting Higher Education Towards AI-Augmented Teaching and Learning Practice", *J. Univ. Teach. Learn. Pract.*, vol. 20, no. 5, p. 02, 2023.
- [21] S. Karaosmanoglu et al., "Language of Zelda: Facilitating Language Learning Practices Using ChatGPT", in *extended abstracts of the 2024 CHI conference on human factors in computing systems, CHI 2024*, New York: Association for Computing Machinery, 2024. doi: 10.1145/3613905.3648107.
- [22] S. E. Huber, K. Kiili, S. Nebel, R. M. Ryan, M. Sailer, and M. Ninaus, "Leveraging the Potential of Large Language Models in Education Through Playful and Game-Based Learning", *Educ. Psychol. Rev.*, vol. 36, no. 1, p. 25, Mar. 2024, doi: 10.1007/s10648-024-09868-z.
- [23] W. Gatti Junior, E. Marasco, B. Kim, L. Behjat, and M. Eggermont, "How ChatGPT can inspire and improve serious board game design", *Int. J. Serious Games*, vol. 10, no. 4, pp. 33–54, Dec. 2023, doi: 10.17083/ijsg.v10i4.645.
- [24] C.-H. Lin, M. Warschauer and R. Blake, "Artificial intelligence and language education: Emerging research and practice", *Language Learning & Technology*, vol. 26, no.2, pp. 1-18, 2022.
- [25] N. Widianingtyas, T. W. P. Mukti, and R. M. P. Silalahi, "ChatGPT in Language Education: Perceptions of Teachers - A Beneficial or Potential Threat?", *VELES*, vol. 7, no. 2, pp. 279–290, Oct. 2023.
- [26] A. Bakla, "ChatGPT in Academic Writing and Publishing: An Overview of Ethical Issues", *Transforming the Language Teaching Experience in the Age of AI*, edited by Galip Kartal, IGI Global, pp. 89–101, 2023, doi: 10.4018/978-1-6684-9893-4.ch005.
- [27] T. Solonina, "Features of the use and impact of artificial intelligence, artificial neural networks on the study of a foreign language in higher education (on the example of German)", *Current Issues in the Humanities*, vol. 73, vol. 3, pp. 235–239, 2024, doi: 10.24919/2308-4863/73-3-35.
- [28] N. Konovalchuk, "Prospects for the use of AI-based tools in teaching Ukrainian as a foreign language", *Ukrainian Educational Journal*, no. 3, pp. 160–166, 2024, doi: 10.32405/2411-1317-2024-3-160-166.
- [29] M.O. Grom, "Application of artificial intelligence in the writing of scientific papers", *Academic integrity: legal problems*, Odesa, 37, 2023.
- [30] O. V. Zubenko, "Artificial intelligence and learning a foreign language", *Transcarpathian Philological Studies*, vol. 2, no. 27, pp. 80–85, 2023, doi: 10.32782/tps2663-4880/2022.27.2.15.
- [31] N.O. Konovalchuk, "Problems of academic integrity in the context of the development of artificial intelligence technologies", *Progressive Research in the Modern World: Proceedings of X International Scientific and Practical Conference* (Boston, USA, June 2023). Boston, p. 234, 2023.
- [32] J. W. Creswell and C. N. Poth, *Qualitative Inquiry and Research Design: Choosing Among Five Approaches*, SAGE Publications, Inc, 552 p., 2017.
- [33] J. Radianti, T. A. Majchrzak, J. Fromm and I. Wohlgenannt, "A systematic review of immersive virtual reality applications for higher education: Design elements, lessons learned, and research agenda", *Computers & Education*, vol. 147, p. 103778, 2020, doi: 10.1016/j.compedu.2019.103778.
- [34] M. Weller, "25 Years of Ed Tech", AU Press, 224 p., 2020, doi: 10.15215/aupress/9781771993050.01.
- [35] W. Wu, R. Supankanok, W. Chandra-Ambhorn and M. I. Taipabu, "Novel CO2-negative design of palm oil-based polygeneration systems", *Renew. Energy*, vol. 203, pp. 622–633, 2023, doi: 10.1016/j.renene.2022.12.103.
- [36] O. Semenog, N. Hrona, T. Khomych, T. Stasiuk, A. Yurchenko and O. Semenikhina, "Communicative Tasks as a Means of Developing the Emotional Intelligence of Students", *International Journal of Modern Education and Computer Science*, vol. 16, no. 4, p. 46-57, 2024, doi: 10.5815/ijmecs.2024.04.04.
- [37] V. Pokatilova and A. Chundak, "Results of an all-Ukrainian study on the prospects of AI in school education", Accessed: 12.24.2024 [Online]. Available: <https://naurok.com.ua/post/oprilyudnenozrezultati-vseukra-nskogo-doslidzhennya-pro-perspektivi-shi-ushkilnyi-osviti>.
- [38] M. Consuegra-Fernandez, J. Sanz-Aznar, J. G. Burguera-Serra and J. J. C. Molina, "ChatGPT: The Dilemma of the Authorship of Graded Assignments in Higher-Education", *RIE-Rev. Investig. Educ.*, vol. 42, no. 2, p. 565391, Mar. 2024, doi: 10.6018/rie.565391.
- [39] H. Ji, I. Han and Y. Ko, "A systematic review of conversational AI in language education: focusing on the collaboration with human teachers", *J. Res. Technol. Educ.*, vol. 55, no. 1, pp. 48–63, Jan. 2023, doi: 10.1080/15391523.2022.2142873.
- [40] General Assembly United Nations, "Seizing the opportunities of safe, secure and trustworthy artificial intelligence systems for sustainable development", Accessed: 12.24.2024 [Online]. Available: <https://documents.un.org/doc/undoc/ltd/n24/065/92/pdf/n2406592.pdf>.
- [41] Instructional and Methodological Recommendations for the Introduction and Use of Artificial Intelligence Technologies in General Secondary Education Institutions, Accessed: 12.24.2024 [Online]. Available: <https://drive.google.com/file/d/1lqdBEQ5X1gc9XNnkMuRRouYdFisDyRU/view>.