

Large language models for foreign language acquisition

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Abstract

The study is the fourth in a row of consecutive papers on the impact of digital technologies on teaching/acquisition of foreign languages previously via multimedia, and presently via artificial intelligence tools. The joint effort of foreign language teachers teams from National Technical University “Kharkiv Polytechnic Institute” and Vasyl Karazin National University, Kharkiv, Ukraine paved the way for introducing communication simulation techniques into the domain of foreign language teaching / acquisition as far back as the beginning of the covid pandemic in 2021 to be aggravated by the start of Russian war on Ukraine in 2022 which predominantly focused on distant online learning.

The present paper hypothesized the wide use of AI platforms, or Large Language Models (LLM) used here alternatively, like ChatGPT, Bard, and the like on a par with the previously described multimedia techniques and blended traditional learning as efficient for the rapid and intensified skill acquisition. The approach proved completely true both in Listening/Speaking and Reading/Writing for students and the Maxims of effective communication introduced by H.P.Grice and adopted for teachers as 7 Cs (Clarity, Conciseness, Concreteness, Correctness, Cohereness, Completeness, and Courtesy). In addition, the benefits of using ChatGPT for training translators/interpreters proved invaluable for making their skills automated due to the abundance of material and new techniques. Some observations on the challenges and threats of LLM usage by students are also highlighted.

As before, the two surveys meant for both students and teachers were proposed for completion at the start and the end of an academic semester, compared, and yielded the results described below. Furthermore, a detailed description of the AI tools used for the research was provided to show how blended learning in the modern digital era is being constantly supplemented with newly developed digital tools, specifically for foreign language learning.

Keywords


Large language models (LLM), artificial intelligence (AI) human-computer interaction (HCI), digital tools, communication, E-learning, foreign language communicative competence, translators’ training, communication simulation, speech synthesis, TTS and STT technologies.


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1. Introduction

As new digital platforms appear on a daily basis, so do the newly developed methods for language learning, and especially so for foreign language acquisition. In fact, the AI-based chatbots are not a revolutionary idea, as they followed in the wake of multimedia technologies as strong communication simulators to replace the “board-and-chalk’ traditional classroom activities [1]. The studies of **communication simulation** stress the “blurred” nature of the borderline between reality and simulated situations [1] apart from facilitation of students’ interaction closing the gap of non-existent native English/German speaking environment (as in Ukraine) and became indispensable under the global COVID pandemic, and even more so after the Russian invasion on Ukraine, the two major reasons to send education from classrooms to distant learning.

However, no modern language course can completely rely on newly developed simulation technologies, be it multimedia or digital platform, for any foreign language acquisition comprises at least four basic elements: listening/speaking and reading/writing which need to be introduced step-by-step through a number of traditional presentational and training techniques to be further supplemented with modern technologies to achieve the right level of intensification for automated skills [2].

The combination of traditional and modern techniques is termed ‘blending’ and continues to be thoroughly exploited in the modern research of language acquisition on the background of rapid appearance of new digital platforms and Large Language Models (LLM) limitations. The present paper deals primarily with the benefits and challenges of LLM of the ChatGPT type and the like, and analyzes the pros and cons of the rapid tempo at which both educators and learners are immersed in the new unbounded possibilities to intensify and speed up the foreign language training and acquisition of the basic four language elements.

The research project on using LLM for foreign language acquisition was launched by a collaborating team from Business Foreign Languages department of NTU KhPI and Romance and Germanic Philology Department of V. Karazin KhNU within the scientific and methodological laboratory for using multimedia technologies in foreign language training. The partnership started with research on using multimedia technologies [3] followed by digital technologies for communication simulation [1] and online communication simulating spaces [4] picking up the subject of Large Language Models in the present study. The latter concentrates on the development of language simulation techniques that would cover for the nearly complete lack of foreign language environment in Ukraine as a former Soviet Union republic with an iron wall between the western world and the closed totalitarian community of all the Union members.

The study **aims** to evaluate the LLM possibilities online for translators and cross-cultural communication experts training and **outlines** the development of assignment sets using **LLM** and the **human-computer interaction** model. All of these required the assessment of LLM introduction into the academic process, the **material** being LLMs (mainly ChatGPT but also Bart, Neuroflash, Perplexity, Bing etc.).

The previous study [4] focused on simulating spaces in online learning, while the present paper gives a deep insight solely into the nature of intensification and acceleration of language acquisition by means of LLM. Hence so much attention to the term ‘simulation’, which is a core to understanding LLMs as a supplementary tool, not

substitution of the human mind. Hence the need for realizing the essence of blended teaching which is indispensable on any stage of the digital tools development. Hence the partnership of AI and human mind, not controversy [5, 6, 7].

Based on the above description of collaboration of technology and human mind, there appeared a **4D frame of human-computer interaction** as a result of the team's investigation in the field of AI for foreign language acquisition. Further on, the team were interested in the results of using ChatGPT for different purposes (Listening/Speaking, Reading/Writing) and circulated surveys for teachers and students at the beginning and end of the 2023 fall semester. The feedback gave astonishingly similar results on the part of both sides.

The digital tools used for practicing the four elements are described in detail with the teachers' ideas of their implementation for blended foreign language acquisition below.

2. Related Works

In our search for similarities of the same problem in the developing countries we have received firm confirmation that one of the most efficient ways to introduce new methods that would yield rapid results is creating foreign-speaking environment either through inviting native speakers or developing artificial simulation communication platforms by means of bringing in multimedia real-life situations (TV, recorded videos, movies and lectures) or, more recently, by developing tools close to real-life interaction.

In recent papers on using LLMs for foreign language learning there is often a reference to the principle of 'student-centeredness' [4, 5]. The partnership 'student-teacher' has acquired a new meaning where the load of Internet search falls entirely on students' preparation prior to their meeting with the teacher within the framework of 'flip classroom'[5] Flip classrooms have been widely introduced as a result of 'student-centeredness' that proved a powerful instrument to meet the students' practical needs and preferences.

In the row of must-have approaches to teaching foreign languages, i.e. '**student-centeredness**', '**communication simulation**' and '**blended learning**' is '**effective communication**'. In fact, it can be viewed as the core aim of all the stages of language acquisition. Gricean maxims of Quality, Quantity, Relevance and Manner combined with the principles of ecolinguistics, non-verbal communication and communication simulation [4] provide a significant effect on communication efficiency.

In the modern globalized world of intercultural communication both via transnational businesses and individually the above-mentioned four Maxims were unavoidably supplemented and categorized by even more clear-cut and efficient **7C principles of communication** (Clarity, Conciseness, Concreteness, Correctness, Coherence, Completeness and Courtesy) [8].

Last, but not least, the above are eventually paired with 'communicative competence' as an apotheosis of the whole structure of foreign **language skills** [9]. In short, it can be only well-proportioned with the above elements included and adhered to, crowned with communicative competence.

Hereby we go by the definition which perfectly fits into the logical structure of effective communication "... it makes sense, ... particularly with regard to educational issues, to understand communicative competence as the situation-specific use of communicative skills" [10]. Specifically, alongside communication skills, they are supposed to include social and motor skills which easily fit into the non-verbal communication mode.

Some authors view social skills as a set of verbal and non-verbal behavior [11]. Our study of non-verbal cues, though, does not necessarily fit into the category of efficient skills, as it may prove deceptive, contradictory, false or inefficient, or purposely misleading, and in our opinion, in this way fail to adhere to communicative competence as a highly complex and complicated branch of communication, even though it can be correctly interpreted in numerous cases as a combination of constant and variable factors.

The picture reflects the necessary branches of participants (students, teachers, facilitators and the corresponding human and AI interlocutors in specific contexts and modes of interaction) for specific purposes (cognition or communication). The frame emphasizes the role of educators as organizers and facilitators of the above interaction and thus stresses once again the nature of digital technologies as tools rather than leading elements which is human mind.

The interdisciplinary nature of communicative competence is thus a combination of at least motor, social, psychological and communication skills [12]. Online training of communication competence can match that of real-life through a number of simulation platforms, with the most efficient and speedy LLM scrutinized in this study.

It's becoming more and more obvious that the whole nature of student-centeredness readily embraces the LLM platforms as highly efficient, though supplementary, tools in foreign language instruction and acquisition.

As a matter of fact, no other digital technology before was as close to human language as ChatGPT [6, 7, 13, 14]. This is a language model that generates oral and writing communication as well as a number of text processing assignments, language translation included. The tool has rapidly gained admiration on the part of the technical community.

According to statistical data, the most popular function of LLMs is "a solution that could help fix errors in writing and accordingly, an instrument that can support students who might be challenged by writing proficiency" [15, 16]. What is increasingly being exploited are the interlocutor capabilities of AI [17]. Many certified language schools (Helen Doron Early Language School [18], Goethe Institute courses for all levels) are integrating AI-supported chatbots and other virtual tools into their online courses. In particular, the Kosi KI application on the Goethe Institute's learning platform is being launched in 2024 in test mode, with tasks including oral practice simulation, evaluation, proofreading and feedback [19], the first textbook with AI modules (Das Leben, Cornelsen). A number of universities, including FUB, are developing frameworks for individualized student tutoring with AI, using the latter as a "sparring partner" individualized to the student's level of knowledge and rate of progress [20].

LLMs are seen as an effective tool to be used for adaptation to the needs of students. AI tools collect data about the learner's performance and use it to generate new tasks and learning modules. Test-oriented AI tools provide immediate feedback supporting shy learners (who often perform better when they use an automated machine feedback in certain situations rather than plenary feedback from the teacher [21]). LLMs are also in line with the principles of edutainment: you can combine ChatGPT and other apps to create vocabulary quizzes (Word Wall, Kahoot, Quizlet) [22].

Academics are still debating whether it should be banned at educational institutions due to their concerns of students' cheating and misconduct [5, 13], writing pedagogy and academic integrity [6, 7]. and this list of its flaws is not complete. Among the shortcomings of ChatGPT the researchers name its inability to capture cultural contexts [23], even though the newly developed applications are able to respond in different accents, for the scope of cultural contexts is immeasurable.

Another serious disadvantage of using ChatGPT, and this is the one voiced by the students themselves, is producing inaccurate information and giving wrong answers. All LLMs can "learn" large amounts of knowledge and even predict the future course of events. But the principle of their existence is based on the ability to deal with existing facts. The human mind can distinguish the possible from the impossible, and deduce regularities. Also, moral and ethical limitations are unknown to LLM. N. Chomsky [24] even speaks about the immorality of LLM (refusal to take responsibility for their answers, shifting responsibility to the creators). Yet the biggest officially recognized problem is students violating the norms of academic integrity and presenting an artificial intelligence product as the result of their own work. This is the reason for the banning of ChatGPT in a number of school districts in the United States [25]. The mentioned survey by Study.com conducted among U.S. K-12 teachers shows the lack of faculty guidance for the teachers confronting Chat GPT. Only 80% of the educational staff is aware of what LLM is. Another survey, conducted among medical students, teachers, researchers, clinical and administrative staff in Chicago claims 40% of respondents tried Chat GPT before. This percentage nearly correlates with the number of Ukrainians familiar to ChatGPT [26], 45,9% of the respondents use it but only statistically insignificant 5,6% for educational purposes.

In the frame of the **present study** the survey held among advanced students revealed that most of them were primarily concerned with inaccurate information, and only about 20% voiced their disquiet about passing off ChatGPT work as their own in essay writing assignments, which in their opinion was risky of becoming too dependent and losing their ability to work on their own. The latter observation is significantly true for translator-training programs, and more so for training oral interpreters which is the case of the present study, for there is substantial difference in teaching machine processing (Applied Linguistics) and training self-relied oral interpreters for spontaneous language generation and automated skills without on-hand machinery.

3. Methods and Materials

3.1. Research Methodology

The study is based on a number of provisions taken as a basis in proving the **hypothesis** of effective use of LLM capabilities in teaching a foreign language. First of all, the study relies on abovementioned Grice's Maxims and their extension in the form of the 7Cs of effective communication. Next, we build on the division of language skills (3.1.1), human-computer interaction (HCI) theories (3.2.2) which allowed us to build a 4D-model of communication between the participants of the educational process and the LLM and to test it on the activities of the four language skills.

The research procedure can be defined as an **evidence-based experiment** designed to test the hypotheses, to **model** an effective LLM based toolkit and to **evaluate** the results using elements of **quantitative analysis**.

3.1.1. Language skills outline

At the first stages of training translators, the main attention is paid to the formation of knowledge and skills in the field of foreign language. The four skill areas of language - reading, writing, listening, and speaking – can be classified in several ways: based on the

materials used (oral language skills compared to written language skills), based on the processes involved (receptive language skills compared to expressive language skills), and based on cognitive abilities (synthetic thinking skills compared to analytic thinking skills) [27].

Oral language skills encompass the ability to understand the sounds of spoken words, comprehend the meanings of words and sentences, and effectively express ideas. Written communication skills, on the other hand, pertain to the capacity to convey information clearly and effectively through written text. Receptive language refers to the "input" aspect of language, involving the ability to comprehend and understand spoken language that is either heard or read. Expressive language skills include spoken, written, and body language, encompassing facial expressions and sign language. Synthetic thinking skills are employed to put together small language components in order to encode or spell words. Conversely, analytic thinking skills are used to break down whole words into their component parts, enabling their decoding or reading.

Linguistic researches underscore the holistic nature of language acquisition and highlight the significance of developing all four language skills in order to achieve proficiency and effective communication. The idea of the harmonious development of all four language skills including reading and listening comprehension, speaking, and writing has been advocated by numerous linguists since the early 1980s. Stephen Krashen's input hypothesis suggests that learners need optimal input to acquire language, and exposure to various forms of language input through reading, listening, speaking, and writing is necessary for (second) language development [28, 29]. Diane Larsen-Freeman, Jack C. Richards (applied linguists) emphasize the integrated nature of language skills. They argue that language skills are interconnected and mutually supportive. Developing reading, listening, speaking, and writing skills in parallel helps learners build a cohesive and comprehensive understanding of the language [30, 31]. The theory is supported by Jim Cummins' model of the Common Underlying Proficiency (CUP) that introduces the concept of the 4 skills transfer to another language in bilingual education [32]. The modern term of integrated teaching can be interpreted as a learning activity where all four skills occur at the same time facilitated by the instructor, the learners, and learning circumstances [33, 34, 35].

From the other side, the contemporary social needs for language acquisition suggest a more detailed approach to the shape of the four skills. Thus, The Common European Framework of Reference (CEFR, 2001, updated in 2020) extends the definition of communicative language ability, and divides speaking into two sub-skills: spoken production and spoken interaction [36]. This is based on the evidence that these two skills are not identical, since one involves only monologue-type speech and the other involves being both a speaker and a listener at the same time. A test of communicative language, therefore, needs to include both spoken production and spoken interaction [37].

As for the writing skills in terms of LLM assistance, the authors stress the danger of teachers' inability to properly detect students' cheating and thus their failure to progress [5]. In this respect we have come up with the idea to make the AI assist rather than hinder the skill development. Since the take-home assignments unavoidably involve the active vocabulary from the main course, here comes the idea of integrating the newly-learned new vocabulary with the usually more complex and rich ChatGPT suggestions. Unless mastered to achieve the automated skills in all four language skills by means of further oral discussions on-the-spot of the same subject as an aftermath of the whole module in the course book the new input by ChatGPT would remain idle and so even harmful in

terms of an intermediary technique leading nowhere, remaining unmastered in the students' essays, and here again we face blended learning as a rightful tool of combination with the digital techniques that would make use of both traditional and ChatGPT-assisted writing with the eventual combination with spontaneous use of the newly-acquired vocabulary in teacher-student communications on the given topic in class.

W. Hong [5] also emphasizes the necessity to retain the century-old methods of writing daily journals, taking notes and making compressions in writing called "conversion-type" writing that we readily agree with, for they can't be assisted by AI as ready-made pieces, and high-stake writing aimed at text generation should be done in class.

3.1.2. Human-Computer Interaction

The field of human-computer interaction (HCI) focuses on comprehending the ways in which humans engage with technology. Its emphasis has shifted from primarily comparing humans to machines to now concentrating on the interactive relationship between humans and machines [38]. Thus, this communication moves from the plane of the utilitarian to the plane of social interaction.

As technologies are becoming increasingly integral to our everyday existence, it becomes crucial to design them in a way that encompasses a diverse range of human abilities, skills, and experiences. With the proliferation of higher education HCI courses, degrees, and practical training programs, there are opportunities for both teaching and learning HCI [39]. But still, the role of HCI in learning is usually underrated [40].

Researchers of HCI [41] dwell that the interaction can be described in terms of concept referring to certain subjects, modes of interaction, purposes, and certain contexts.

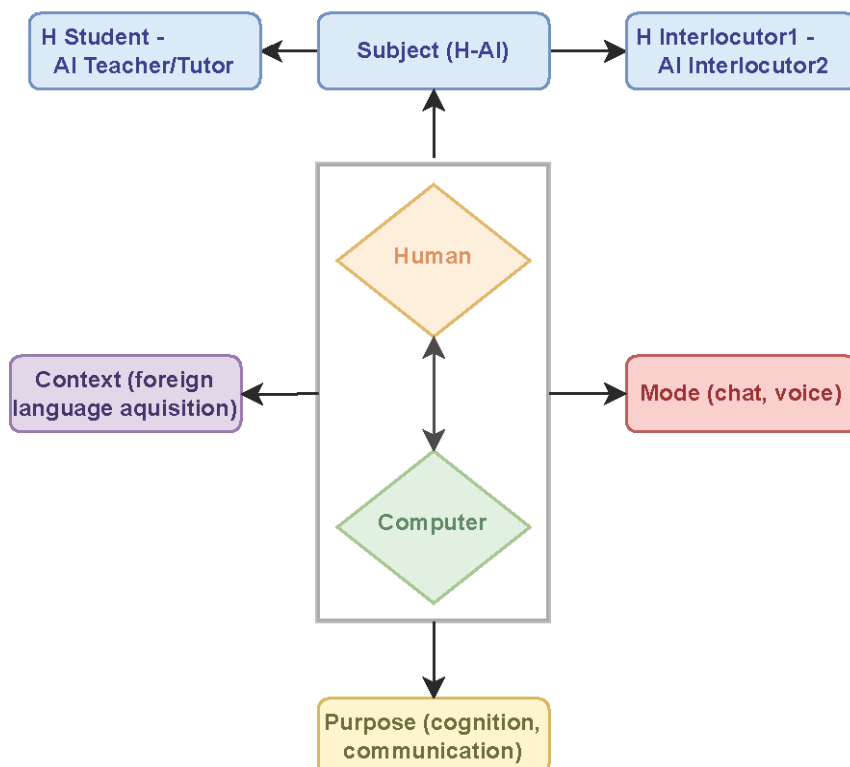


Figure 1: 4D frame of human-computer interaction

The frame model of human (H) and AI interaction within the context of foreign language acquisition depicts the necessary branches of participants (students, teachers, facilitators and the corresponding human and AI interlocutors in specific contexts and modes of interaction) for specific purposes (cognition or communication). The frame emphasizes the role of educators as organizers and facilitators of the above interaction and thus stresses once again the nature of digital technologies as tools rather than leading elements which is human mind.

The choice of algorithm is important in the interaction between man and machine [42]. In our study, we relied on the linguopragmatic model, the central concept of which is intention. The participants of the educational process involving artificial intelligence should realize their goal, the predicted result and on this basis formulate task statements - their own and artificial intelligence's. Thus, the participants of the experiment used Tom Barrett's CREATE model [43] when formulating prompts to LLMs. The model is based on the general philosophical position that the quality of the answer depends on the quality of the question. Therefore, the prompt should be Clear (the tasks should be formulated exceptionally clearly), Relevant (the prompt should contain specific details specifying the parameters of the target group), contain Examples (give the context of the problem), Avoid ambiguity, Tinker (check, redesign, creatively rework), Evaluate (critically assess the result, optimize the data for input). The participants of the experiment were familiarized with the CREATE principles and applied them during the experiment.

3.2. The material of study

The material of the study was the textual, graphic and sound output generated by the LLMs and implemented in the methodology and practice of teaching. The choice of LLMs was based on their functionality: the models like GPT-3.5 are typically characterized by their vast parameter count and are capable of understanding and generating human-like texts.

Both text message generating chatbots (ChatGPT, Bard/Gemini, NovelAI, Neuroflash), STT/TTS tools (Speechify, Murf, ElevenLabs, Otter, AI assistant "Talk to Mia", "Voice Control for Chat GPT"), machine translation tools (DeepL Translate, ChatGPT), feedback tools (DeepL Write, LanguageTool, Wortliga, SmallTalk2me, GPT for Sheets and Docs) and graphical image generators (Canvas, Bing, DALL-E3 by OpenAI) were used for the experiment. It is necessary to mention special digital educational tools based on the principles of edutainment and integrating AI (Grammarly, Quizlet, Duolingo).

3.3. The sample of the study

A total of 84 samples were collected from members of the EFL community at the National Technical University "Kharkiv Polytechnic Institute" and Vasyl Karazin National University. These samples comprised two distinct focus groups: one consisting of English major students and the other comprising English and German teachers affiliated with the Business English and Translation Department and Romance and Germanic Philology Department. The participants included 71 students spanning the 1st to 5th year (bachelor and master levels), studying English as their primary foreign language and German as their secondary foreign language. The students, aged 17-24, demonstrated diverse academic levels. Additionally, the sample included 13 teachers, aged 26-70. Notably, a

great majority of teachers (92,3%) have experienced online teaching since 2020 (the beginning of the pandemic), while 71.7% of the students have accumulated more than two years of E-learning experience.

3.4. Research Instruments

The constructional steps in this study rely on input data gathered through interviews with students and teachers. These interviews were conducted prior to the implementation of the LLM based toolkits in September 2023, marking the initial phase of the research. Subsequently, the second part of the survey occurred post-LLM classes, specifically during the winter semester of 2023/2024 in January 2024, aiming to validate the efficacy of the method. Both sets of interviews were carried out asynchronously via Google Forms. The authors of the research conducted all interviews, and the utilization of the collected data was done with permission from the participants.

Questions from the entrance and exit survey diagnosed starting positions (experience of online classes, familiarity with LLM, areas of application of LLM if there is any experience). Personal attitudes towards LLM and prognosis (possible risks of LLM implementation and necessary limitations of AI use) were also monitored. The teachers' questionnaire was also supplemented by a request to assess students' communication skills prior to the experiment.

The final survey of both categories of respondents clarifies the quantitative and qualitative use of the LLMs in the learning process, and the instructors evaluate the students' communicative skills after a semester of purposeful use of AI in four types of language activities.

4. Experiment

The present study proposes toolkits developed by the Scientific and Methodological Laboratory that allow the integration of LLM in the teaching of all kinds of language skills. During the experiment, techniques for structuring and modeling competency-based toolkits were used.

4.1. Building LLM based reading comprehension toolkit

According to Common European Framework of Reference for Languages, the term "reading comprehension" covers reading for orientation, reading for information and argument, reading as a leisure activity, reading instructions and reading correspondence [36, p. 53]. Reading comprehension is taken to include both written and signed texts. The categories for reading are a mixture between reading purpose and reading particular genres with specific functions. The highest level of overall reading comprehension encompasses understanding virtually all types of texts including abstract, structurally complex, or highly colloquial literary and non-literary writings [36, p. 54].

There are several AI based platforms designed to assist students in learning reading skills, including phonics. They provide personalized feedback, adaptive learning experiences, and engaging content (Lexia Core5, SmartyReader, Knewton, BookNook, etc). But in the case of learning a foreign language, the most important thing is the dominance of reading comprehension itself. A wide range of vocabulary and accurate grammar contribute enormously to reading comprehension. Therefore, a LLM based reading

comprehension toolkit implemented within the scope of Scientific and Methodological Laboratory at Business Foreign Languages and Translation Department in NTU “KhPI” and Romance and Germanic Philology Department in Vasyl Karazin National University is largely focused on enhancing students’ vocabulary and improving grammar knowledge and, as a direct consequence, developing better reading comprehension. It consists of using a chatbot Chat GPT, Google Chrome extension “GPT for Sheets and Docs”, and “AI-powered Vocabulary Booster” in the application “SmallTalk2Me”.

Chat GPT can contribute to students’ reading comprehension in several ways: text understanding, summarization, clarification, question answering, contextual understanding, and language translation. ChatGPT helps ESL students understand and interpret complex passages, breaking down content into simpler and more comprehensive pieces. It is possible due to the fact that ChatGPT is trained on a diverse range of texts, making it proficient in understanding and processing information. It is also easy to adjust the content and length of the reading material according to the student’s reading level.

On the pre-reading stage, ChatGPT can provide background information or context related to the reading material. Understanding the context can help students anticipate the content and make predictions about the text. For example, before reading a text about stereotypical perceptions of Germany, students can compare their perceptions of the country with AI-generated statistically significant common perceptions (see Figure 2).

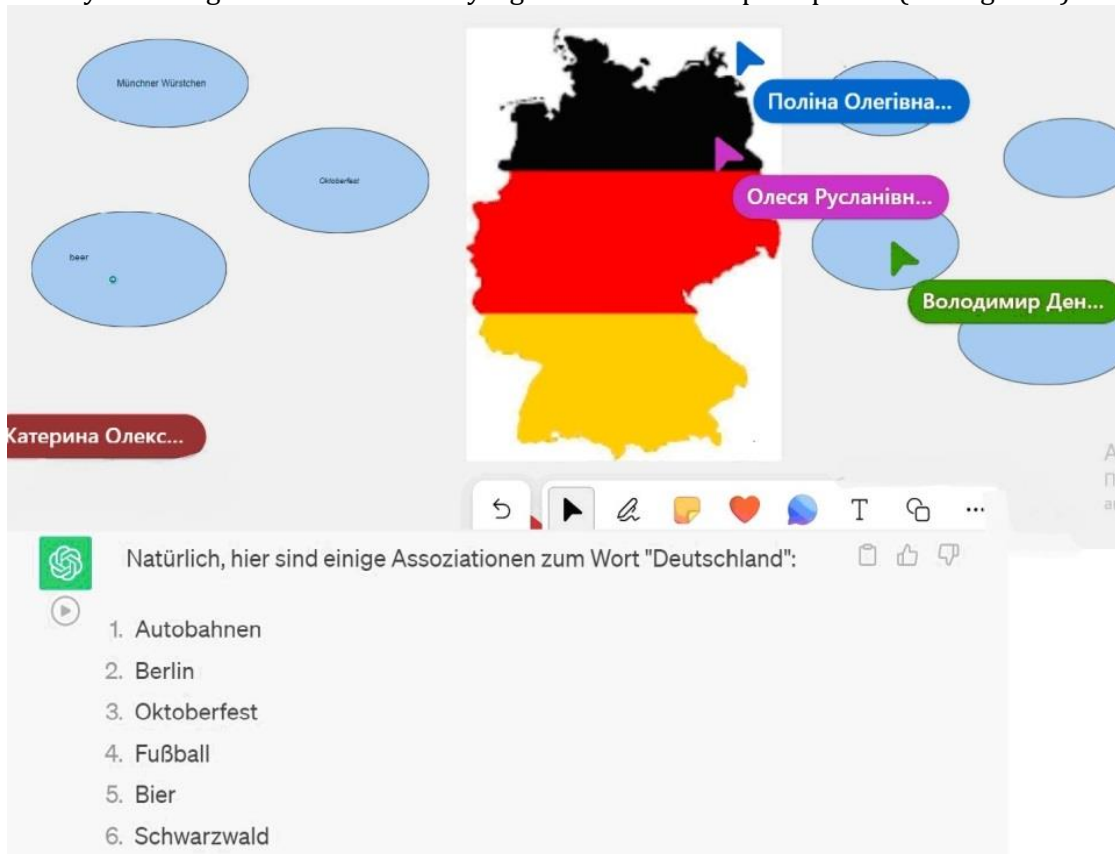


Figure 2: Pre-reading associations with Germany formulated by students and ChatGPT

In terms of summarization, ChatGPT provides students with a concise account of lengthy texts, helping students to grasp the main points and key information without

going through every detail. In case of ambiguous or unclear sentences in a text designated for a reading activity, ChatGPT can be asked for clarification. It can help ESL students rephrase or explain the content in a more understandable way. Moreover, ChatGPT can answer specific questions related to a given text. This is particularly useful for extracting information from articles, research papers, or any other written material. In addition, ChatGPT is designed to maintain context over a conversation. This can be beneficial for understanding how information in a text relates to other pieces of information or concepts. Taking into consideration that our toolkit is designed for students of “Translation” speciality, language translation is of paramount significance, and ChatGPT can help translate and provide explanations for better comprehension.

To leverage ChatGPT for reading comprehension, students are encouraged to provide specific questions or prompts related to the text they are reading. Additionally, they can iteratively refine and ask follow-up questions to delve deeper into the content.

Another useful means of teaching reading comprehension is Google Chrome extension “GPT for Sheets and Docs”, which makes using Chat GPT possible in Google Sheets and Google Docs. The activity which we suggest to our students is the following. A teacher puts reading texts into cells A1, B2..., the amount depends on how many variants of reading activity the teacher wants to receive (See Figure 3). Then the teacher writes in the cells A3, B3... the instruction for GPT following the formula =GPT(“prompt”; [value]). For example, if the teacher wants to receive five reading questions based on text in cell A1, it should be written in cell A3: =GPT(“Make five reading questions”; [A1]). To receive five multiple-choice questions checking students’ reading comprehension, the teacher should write in cell A5: =GPT(“Make five parts of speech multi-choice questions focusing on adjectives”; [A1]). The outcome of making different tasks for checking reading comprehension with the help of GPT is shown in Figure 3 below.

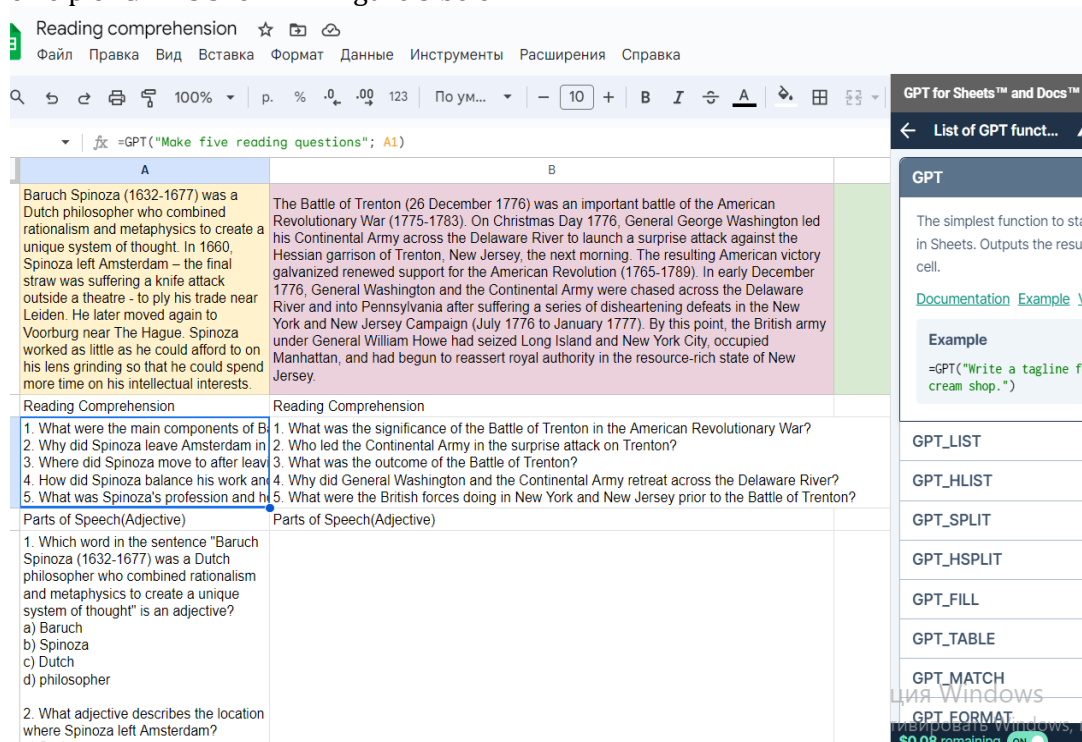


Figure 3: The process of creating reading comprehension tasks with the help of Google Chrome extension “GPT for Sheets and Docs”

And last but not least in our reading comprehension toolkit is “AI-powered Vocabulary Booster” in the application “SmallTalk2Me”. First of all, the application “SmallTalk2Me” provides ESL students with a diagnostic test where students’ vocabulary is also analyzed (See Figure 4).

Vocabulary statistics

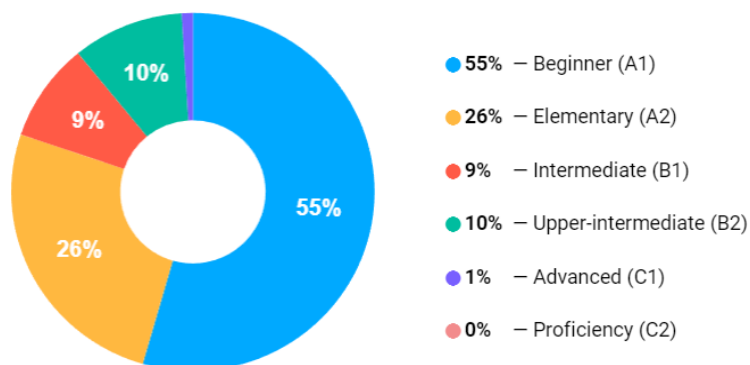


Figure 4: The example of AI analyzing the student’s vocabulary after passing a diagnostic test in the application “SmallTalk2Me”

After having received the vocabulary test results, ESL students enhance their vocabulary by using “AI-powered Vocabulary Booster” in the application “SmallTalk2Me” for better reading comprehension. “AI-powered Vocabulary Booster” suggests such topics as Art and Culture, News and Media, Society and Politics, Business and Finance, Food and Cooking, Sport, Home, Tech and Internet, Hobby, Fashion and Clothing, Nature and Environment, Travel Talk, Family and Relationships, Health and Wellness, and Job and Workplace. AI chooses three terms from the chosen topic which should be practiced. First, a student reads definitions of these terms and reads a text which includes these terms whereas the student’s speech is being recorded. Afterwards, a student answers questions including these terms and based on the read text. At the end, aimed vocabulary is used in the student’s speech and recorded. After the vocabulary practice, AI gives a feedback.

Thus, the advent of large language models (LLMs) has revolutionized the way we approach tasks such as reading comprehension. These models, fueled by powerful algorithms and massive datasets, have demonstrated remarkable capabilities in processing and generating human-like text. In this chapter, we delved into the intricacies of building a Reading Comprehension Toolkit based on LLMs, exploring the fundamental concepts, methodologies, and tools required to unlock the full potential of these language models for improving reading comprehension among ESL students.

The activities found to be effective for learning reading comprehension as a result of the experiment are summarized in the table in Section 5.1. Matrix „Student-Teacher-AI“.

4.2. Building LLM based listening comprehension toolkit

The expression “oral comprehension” covers comprehension in live, face-to-face communication and its remote and/ or recorded equivalent. It thus includes visual-gestural and audio-vocal modalities. The aspects of oral comprehension included here under reception are different kinds of one-way comprehension, excluding “Understanding an interlocutor”(as a participant in interaction), which is included under interaction [36, p.

8ff)], understanding a live conversation as an interlocutor, as a member of the audience, understanding media and recordings, audio-visual comprehension.

A Large Language Model based listening comprehension toolkit implemented within the scope of Scientific and Methodological Laboratory at Business Foreign Languages and Translation Department in NTU “KhPI” and Romance and Germanic Philology Department in Vasyl Karazin National University incorporates such AI-based browser extensions and applications as Speechify, Murf.ai, ElevenLabs.io, Otter.ai and an AI assistant “Talk to Mia” which is part of the Google Chrome extension “Voice Control for Chat GPT”. The former three tools generate lifelike speech in any language and voice with a text-to-speech (TTS) technology which combines advanced AI with emotive capabilities. The latter two tools are based on speech-to-text (STT) technology. These tools help students to develop listening comprehension in situational dialogues, improve pronunciation, and master appropriate intonation patterns. In this chapter, we will dwell on the implementation of these AI based tools in teaching foreign languages more thoroughly.

A mobile, Google Chrome extension and desktop application Speechify can read a foreign language text aloud for an ESL student and uses a computer-generated text-to-speech voice. A student can choose among famous people’s voices (Gwyneth Paltrow, Snoop Dogg and others) and customize the speed of speech (from 200 words per minute to 900 words per minute). The application uses optical character recognition technology to transform physical books, photos or printed texts into audio. PDF, webpages and Google Docs can also be read by an application out loud. Taking into consideration this ability of AI to scan the words on the page and read it out loud, without any lag, we encouraged students to use it and scan every text for reading which they were going to read and discuss in class during the term. As a result, at the end of the semester students’ listening comprehension skills have improved qualitatively.

Another application which was implemented into teaching foreign languages is Murf AI. It offers a virtual studio where any text can be transformed into speech and listened to by ESL students. What makes it different from the previous tool is that the library of professional voices numbers more than 120 modes. Pauses, the pitch of the voice and the speed of the speech can be adjusted. Audio created by AI is combined with video and, as a result, a project is created. Students can work in teams on their assignments. These virtual studios also allow learners to write dictations conducted by AI because pauses after sentences can be regulated. It is a teacher who chooses a text for a dictation, sets up places where pauses should be made by AI and converts it into the speech. Various voices, accents and dialects make ESL students absorb the diversity of a foreign language and see flexibility in their listening comprehension skills.

Murf additionally enables students to listen to any piece of printed text instead of looking up every separate word in the dictionary. Furthermore, multimedia projects created by students in the Murf Studio make them listen to correct pronunciation multiple times while combining audio and video materials in their works.

ElevenLabs is also an AI voice generator which uses TTS technology and renders human intonation and inflections adjusting the delivery based on context. This application can convert long-form content to audio, which is why it was advised to ESL students for individual homework to convert favorite books into audio books and listen to them. The advantage of such an audio book lies in the opportunity to choose audios across 29 languages and 120 voices, and opt for emotive tone of speech, e.g. lively, calming, whispering etc.

STT technology based tools are also included into a LLM based listening comprehension toolkit. Otter AI stands out among them. This AI application joins Zoom, MS Teams, and Google Meet, automatically records, transcribes, captures slides, and generates summaries in real time. Note-taking by AI was a function which was recommended to students as an experiment in case they wanted to be engrossed into listening to lectures without being distracted by taking notes but were interested in revising materials afterwards. The ability of Otter AI to convert audio or video into a text significantly helps students to recognize words and look up unknown words and expressions in the dictionary due to the transcribed text in real time mode.

Another constituent part of a LLM based listening comprehension toolkit is an AI assistant "Talk to Mia" which is part of the Google Chrome extension "Voice Control for Chat GPT". It develops speech recognition in situational dialogues. A language assistant asks questions and a student responds by practicing listening comprehension in such a way.

To conclude, a Large Language Model based listening comprehension toolkit implemented within the scope of Scientific and Methodological Laboratory at Business Foreign Languages and Translation Department in NTU "KhPI" and German Philology and Translation Department in Vasyl Karazin National University is based on speech synthesis which works by installing applications either on a device or as a browser extension. Receiving a real-time transcription of the speech by students from AI contributes a lot to their understanding of the speech. In addition, the AI ability to scan the words on the page and read it out loud, and to change accents, languages, the default voice to a custom voice, and even increase or decrease the speaking rate enables ESL students to listen to any printed text they deal with. Thus, both speech synthesis TTS and STT technologies improve students' listening comprehension skills dramatically.

The activities found to be effective for learning listening comprehension as a result of the experiment are summarized in the table in Section 5.1. Matrix „Student-Teacher-AI“.

4.3. Building LLM based writing toolkit

In the categories for written production, the macro-functions "transactional language use" and "evaluative language use" are not separated because they are normally interwoven. "Creative writing" is the equivalent of "Sustained monologue: describing experience", and focuses on description and narration. Reports and essays writing covers more formal types of transactional and evaluative writing and signed production. The highest level of overall written production is defined as producing clear, smoothly flowing, complex texts in an appropriate and effective style and a logical structure which helps the reader identify significant points [36, p.66-68].

The Common European Framework of Reference for Languages outlines the proficiency expectations. For creative writing, students are expected to relate clear, smoothly flowing, and captivating stories and experiences while employing a style suitable for the chosen genre. This includes the ability to use idioms and humor effectively. On the other hand, for reports and essays, the expectation is to produce clear, complex pieces that present a case, provide critical appreciation of proposals or literary works, and establish a logical structure that helps readers identify significant points. Furthermore, the proficiency involves the skill to articulate multiple perspectives on complex academic or professional topics, clearly distinguishing personal ideas from those sourced [36, p.67-68].

The CEFR also emphasizes production strategies, such as planning, compensating, monitoring, and repair, which contribute to effective written communication [36, p. 69ff]. It's noteworthy that the written aspect is not confined to monologic production, highlighting the significance of interaction. Given the surge in online communication, the importance of this interactive aspect has seen rapid growth over the past two decades.

A Large Language Model based writing toolkit implemented within the scope of Scientific and Methodological Laboratory at Business Foreign Languages and Translation Department in NTU "KhPI" and Romance and Germanic Philology Department in Vasyl Karazin National University incorporates such AI based browser extensions and applications as DeepL Write, Neuroflash, Grammarly, a chatbot Chat GPT, NovelAI and Google Chrome extension "GPT for Sheets and Docs". All of these tools are focused on improving students' grammar, style and boosting vocabulary. Previously before the era of AI, we have already researched the problems of creating linguistic tools for the virtual lexicographic laboratory of explanatory dictionaries (DLE 23). The goal of the research was to consider some issues related to the development of linguistic tools for the virtual lexicographic laboratory. To achieve this goal the dictionary was analyzed to define the peculiarities of linguistic facts representation, its structure and metalanguage. On the basis of the dictionary analysis and the theory of lexicographic systems the formal model of DLE 23 was developed and its main components, including their relationships, were determined to ensure their availability via linguistic tools for accessing linguistic information [44, p. 43ff]. Nowadays, we can see that the major part of this work related to analyzing vocabulary can be done by AI.

LLMs can analyze text for clarity, conciseness, and sentence structure (which corresponds with the 7 Cs of effective communication). This can highlight areas where a writer can improve the flow and readability of their work. Also LLMs can provide texts of different genres and styles that can be used for a pre-writing text analysis. Language processing AI tools like Neuroflash based on ChatGPT 3.5 driver offer a range of text types that can be created with its capabilities: essays, reports, articles, blog posts, product descriptions, social media posts, emails, short stories, news articles, presentations. The same plot can be presented in different styles to make evident the divergent genre features. Figure 5 shows an example of a well known fairy tale formulated as a scientific paper and a newspaper article:

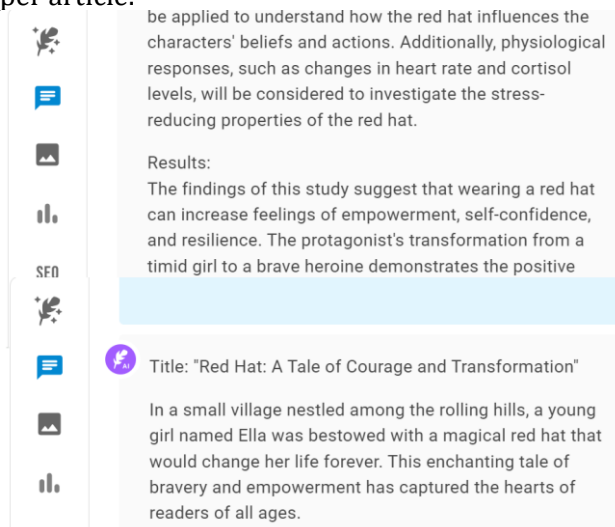


Figure 5: ChatGPT generated genre samples (scientific paper vs newspaper article)

Such AI-based tools as DeepL Write and Grammarly offer students a comprehensive feedback on their spelling, grammar, punctuation, clarity, and writing style. Generative AI capabilities allow students to produce instant drafts, ideas, replies, and receive suggestions on writing while doing this activity. These tools are aimed at preventing learners from repeating the same mistakes and correcting them instantly. Furthermore, after a writing activity a chatbot Chat GPT if asked can explain to learners which rules were to be applied regarding the mistakes they made. This feature is used as a mistake correction analysis at a post-writing stage.

Another more imaginative and immersive AI writing tool is NovelAI, a service for AI assisted authorship. A student chooses setting configuration presets, output length, and the degree of plot randomness for the story. A student writes the beginning of the story and AI algorithms continue it with human-like writing using AI models, trained on real literature. Then a student continues writing, having received a new twist of plot from AI. It can be a very continuous process resulting even in a book. The AI seamlessly adapts to the student's input, maintaining the learner's perspective and style. This tool boosts ESL student's creativity and flexibility in writing, and enhances the learner's vocabulary and writing style.

In this respect, Google Chrome extension "GPT for Sheets and Docs" can also be used for improving ESL students' writing skills. The writing activity which we suggest to our students is the following. A teacher writes a question which a group is going to answer in a written form, for example "Which country would you like to visit and why?" Students write their responses in corresponding cells in Google Sheet. The teacher writes a prompt for Chat GPT to suggest improvements to every student's writing piece. For the cell C2 the instruction for GPT will be given according to the formula =GPT_EDIT(B2) and correspondingly other cells for Column C(See figure below). In the next column, every student should compare their writing with Chat GPT suggestions and explain the difference by finding their mistakes in writing. Such an approach with instant feedback and mistake correction makes improving students' writing skills more effective. The outcome of doing simultaneous writing activity by a group of students for improving writing skills with the help of GPT is shown in Figure 6 below.

	A	B	C	D
1	Student's Name	Please, write your text hear: Which country would you like to travel and why?	ChatGPT suggestions	Can you see the difference? What is the mistake?
2	Helen	I would like visit Portugalia because it is full of sunshine and joy.	I would like to visit Portugal because it is full of sunshine and joy.	I forgot "to". The correct name of the country is Portugal
3	Peter	I always wanted to pay a visit to Morocco. It is such an exotic and exquisite place.	I have always wanted to pay a visit to Morocco. It is such an exotic and exquisite place.	Present Perfect should be used.
4	Ivan	USA is a country I eager to see because all the progress goes from there.	The USA is a country I am eager to see because all the progress comes from there.	

Figure 6: The process of doing writing tasks by a group of ESL students with the help of Google Chrome extension "GPT for Sheets and Docs"

Another valuable tool for foreign language learners can be image generators (Canvas, Bing, DALL-E3 etc). Image generators offer visual stimuli to inspire writing activities. Students may be prompted to articulate their observations, craft narratives, or convey their thoughts and emotions in response to the visual content. This fosters the development of descriptive writing, storytelling, and the utilization of vocabulary linked to the depicted scenes. Furthermore, learners can utilize image generators to generate a series of images that narrate a story. This not only improves their narrative writing abilities but also stimulates critical thinking regarding the logical progression of events and the overall coherence of their narratives.

The toolkit, suitable for use by both students and teachers, includes LLMs that analyse written text, offer opportunities to improve style, categorise errors and give feedback on written text, and improve readability levels.

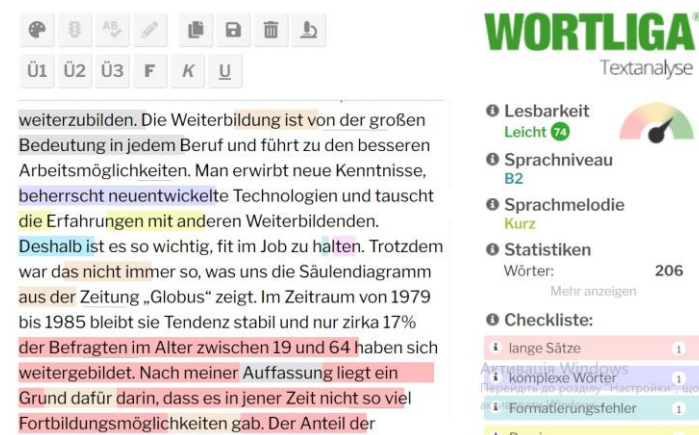


Figure 7: Feedback on a student's essay given by an LLM

Thus, this LLM based writing toolkit is implemented in teaching foreign languages to help students develop their writing skills and achieve their writing goals. It includes editing and proofreading written content, improving readability and clarity, and identifying areas where writing can be improved. The toolkit is also useful for identifying common writing mistakes, such as overuse of certain words, and boosting students' vocabulary.

The activities found to be effective for learning writing as a result of the experiment are summarized in the table in Section 5.1. Matrix „Student-Teacher-AI“.

4.4. Building LLM based speaking toolkit

According to CEFR, the categories for oral production are organised in terms of three macro-functions (interpersonal, transactional, evaluative), with two more specialised genres: “Addressing audiences” and “Public announcements”. “Sustained monologue: describing experience” focuses mainly on descriptions and narratives while “Sustained monologue: putting a case(e.g. in a debate)” describes the ability to sustain an argument, which may well be made in a long turn in the context of normal conversation and discussion. Later “Sustained monologue: giving information” was added to this list of speaking genres [36, p.61].

Furthermore, in terms of oral interaction activities, the CEFR emphasizes the importance of developing learners' ability to communicate effectively in real-life situations

- for information exchange, goal-oriented cooperation, formal and informal interaction, interview [36, p.71-81]. Students outside the language environment may feel awkward and have difficulty communicating, so they need assistance during interactive activities such as pair and group work, role-playing, debates, discussions, and problem-solving tasks to develop their pragmatic and sociolinguistic competence.

Until recently Chat GPT was considered to be only a text chat where one can write and read, but due to the rapid development of AI it is possible to practice speaking and listening skills as well nowadays. The Google Chrome extension "Voice Control for Chat GPT" for computers and laptops and the mobile version of Chat GPT 3.5 provide effective ESL speaking activity simulation for ESL students. For this purpose, in the course of English practical classes, students are offered to choose the recognition language, the language and the gender of the virtual interlocutor in the model settings (in Chat GPT 3.5 there are five voice modes with American accents named Juniper, Sky, Cove, Ember and Breeze, in the Google Chrome extension "Voice Control for Chat GPT" incorporates both British male/female and American male/female voice modes). The general prompts for ChatGPT to start a conversation where a student asks questions and Chat GPT responds are as follows: "Act as a [the name of the profession]. Act as a real person but not AI. I will ask some questions about your job and you will answer. My level of English is [choose A1-C2], so use a[simple/advanced] language. Answer with one or two sentences."

Following the given formula, in the course of practicing English speaking skills with the 1-year students of The Business Foreign Languages and Translation Department NTU "KhPI" and Romance and Germanic Philology Department in Vasyl Karazin National University ChatGPT was given the following communication prompts: "Act as a journalist. Act as a real person but not AI. Usually, you work alone. You have been working as a journalist for three years. I will ask some questions about your job and you will answer. My level of English is B1, so I use simple language. Answer with one or two sentences".

During the conversation, the students asked their Chat GPT interlocutor the following questions:

- Why have you chosen this profession?
- Could you tell me a funny story from your experience?
- Who have you interviewed so far?
- What is your worst working experience?
- Could you give any pieces of advice for beginner journalists? and so on.

Answers of Chat GPT as a communicative simulator were comprehensive, creative, with a sufficient level of lexical richness and grammatical accuracy (Figure 8).

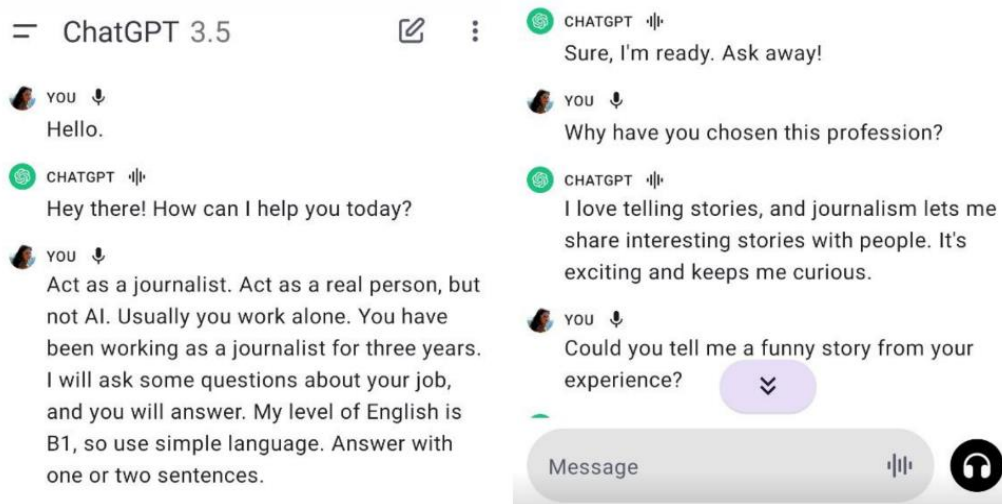


Figure 8: The transcript of an oral two-way conversation where a student asks and Mobile Chat GPT 3.5 responds

In addition to the possibility of creating an effective artificial English-speaking environment, this simulation of communicative activity provides a certain degree of psychological comfort, because the student understands that this is a language simulator, thus there is an opportunity to repeat the question several times before voicing it. Due to the fact that the chatbot reacts to coherent speech, and perceives pauses as a signal to start an answer, students develop the habit of speaking without pauses and stops, with the necessary rhythm and correct pronunciation to be recognized by artificial intelligence.

It is necessary to mention that the above-described exemplary embodiment of teaching speaking with the help of Chat GPT refers to a one-sided conversation where a student mainly learns to ask questions to a virtual interlocutor and listens to its answers. To reverse the direction of this speaking practice and change it for the scenario where it is a student who is largely asked questions by Chat GPT and learns to answer fluently and correctly, another set of more detailed prompts should be implemented.

Below is an example of thoroughly elaborated prompts for the Google Chrome extension "Voice Control for Chat GPT" or the mobile version of Chat GPT 3.5 where oral conversation simulation is currently possible:

Role: Chat Practice Partner with [the student's name]

Topic: Traveling

Style: Casual, respective, not too enthusiastic or flowery

Steps: Initiate with a topic-specific question. Wait for [the student's name]'s answer. One question at a time. Reply genuinely, with brief follow-ups. Encourage [the student's name] to share thoughts and opinions supportively. Maintain a balanced conversation.

Example: "Can you share a memorable travel experience and why was it so special?"

Response: "Interesting. I had a similar trip to Europe. How did you feel during and after your flight? Any surprises?"

Respond with "OK" and wait for me to say "Let's get started" before asking the first question.

After having changed the formulation of Chat GPT prompts, we can see that the student and AI exchange the roles and Chat GPT acquires the proactive roles of both an enquirer and an interviewer that is genuinely interested in the student's experience, opinion and

thoughts. In this teaching mode it is Chat GPT that has an active role in keeping the conversation going and encourages the student to contribute to their conversation (See Figure 9).

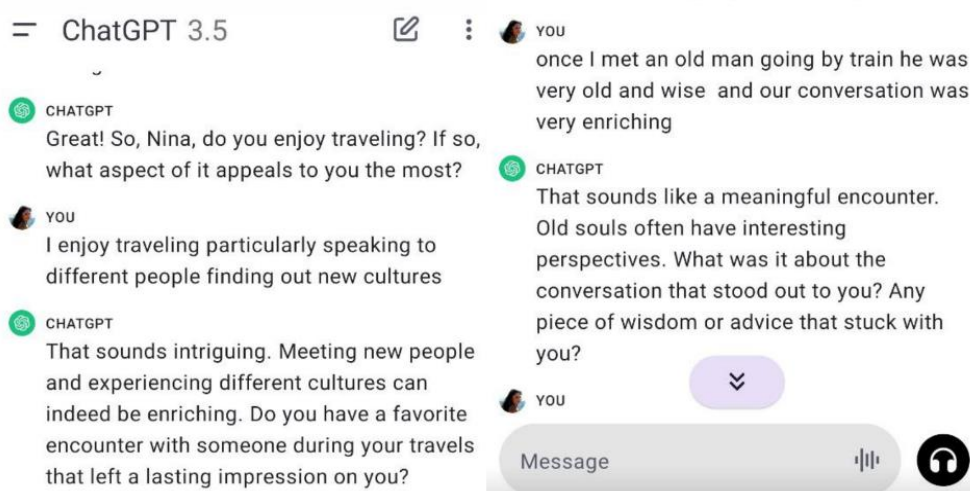


Figure 9: The transcript of an oral two-way conversation where Mobile Chat GPT 3.5 asks and a student responds

Afterwards Chat GPT is asked to analyze and give feedback on the student's grammar. The above-mentioned Chat GPT prompts are designed to make oral communication simulation more personal due to adding the name of the student, well-balanced owing to alternation of questions and follow-up responses from Chat GPT, and plausible as a result of reducing the length of answers and responses.

Meanwhile the teacher's role as a facilitator is also significant in this part because it is the teacher who should give feedback on the students' pronunciation. Since Chat GPT doesn't actually "hear" the speaker, in fact, it largely relies on a voice-recognition program which provides Chat GPT with the transcribed interlocutor's speech. Then AI responds to the transcribed text which means that pronunciation cannot be corrected as thoroughly as, for example, grammar, thus speech can be either recognizable or non-recognizable for Chat GPT. So, it is the teacher's task to correct the student's pronunciation of words which were mispronounced and help the student to adjust the intonation and fluency of speech. So, AI feedback tools can be helpful in transforming speech to text and evaluating the transcript.

Similar to a writing toolkit, the Speaking LLM toolkit incorporates image generators. These generators serve as tools to introduce new vocabulary associated with visual content. Students can recognize and acquire words linked to the images, broadening their lexical repertoire and enhancing their precision in self-expression. Engaging students in discussions about the visual content, encouraging them to share opinions, or weaving narratives based on the images contributes to the refinement of oral communication skills, fluency, and proficiency to articulate ideas verbally. In collaborative activities, image generators can be employed for joint storytelling or discussions around a given image, fostering peer interaction and communication skills, thereby creating a collaborative learning environment. Through the analysis of images, students are prompted to apply critical thinking skills and make inferences. Tasks such as speculating about the context, inferring relationships between elements in the image, or predicting future developments

enhance their capacity for critical thinking and coherent expression in both written and spoken forms.

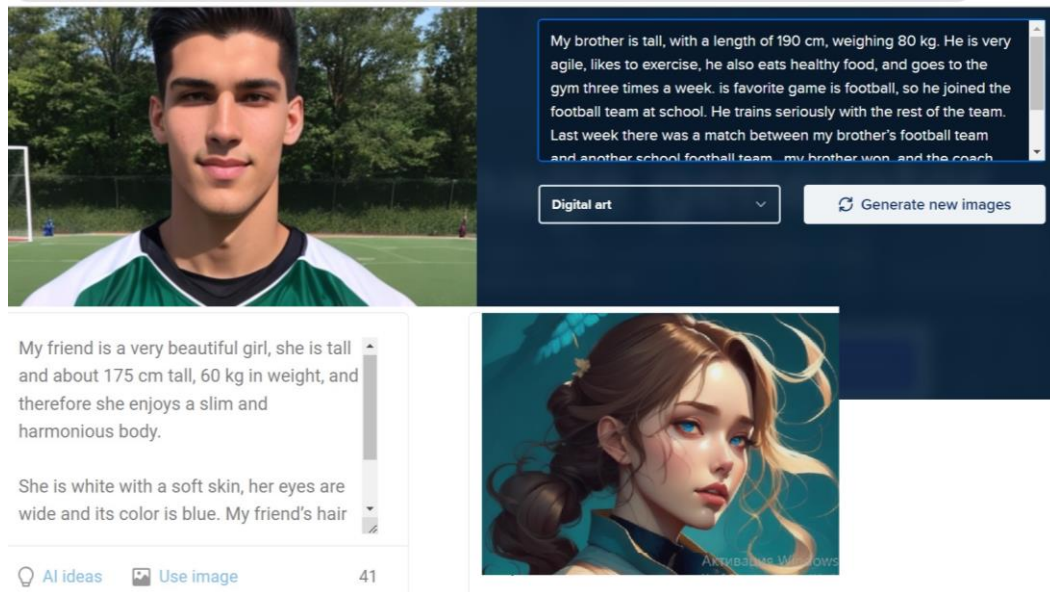


Figure 10: Freepick and Hotpot-generated images for the topic “human appearance”

Thus, this chapter showcases a LLM based speaking toolkit which was developed and implemented within the scope of Scientific and Methodological Laboratory at Business Foreign Languages and Translation Department in NTU “KhPI” and Romance and Germanic Philology Department in Vasyl Karazin National University. Suggested toolkit prompts for practicing speaking skills with Chat GPT imply the opportunity to put a student in a role of more an interviewer than an interviewee and vice versa depending on personal needs of the concrete student. Hence, gamification and diversification of the educational process with the help of LLM based speaking toolkit via the ability to personalize communication and choose a topic is an additional factor of encouraging students to develop speaking skills in the course of foreign languages learning.

The activities found to be effective for learning speaking as a result of the experiment are summarized in the table in Section 5.1. Matrix „Student-Teacher-AI“.

5. Results

As a result of approbation of the hypothetical model of LLM implementation (created by the Scientific and Methodological Laboratory) in the educational process in the winter semester of the 2023/2024 academic year, it was possible to establish a list of activities that are most productive for the development of communicative skills:

Table 1
Matrix „Student-Teacher-AI“

LLM based activities	Students	Teachers
<u>Reading Comprehension</u>		
Text didactization	-	+
<i>Pre-reading</i>		
Activating topical background	+	+
Multimodal sensibilisation	-	+
Conceptualization of the vocabulary	+	+
Predicting	+	-
<i>While-reading</i>		
Skimming	+	-
Filling in text map	+	-
<i>Post-reading</i>		
Comprehension quiz	+	+
Summarizing	+	-
Discussion	+	-
<u>Listening Comprehension</u>		
Listening to any foreign language text transformed from a printed to an audio format by AI	+	+
Making audio and video presentations in a virtual studio	+	+
Writing dictations conducted by AI	+	-
Transcribing and summarizing lectures	+	-
Participating in situational dialogues	+	-
<u>Writing</u>		
Creative writing	+	-
Giving a comprehensive feedback on their spelling, grammar, punctuation, clarity, and writing style	+	+
Mistake correction and analysis	+	-
Proofreading	+	-
Formal writing	+	-
Visual prompts (generated images) as writing stimuli (descriptive writing, storytelling)	-	+
Evaluation and feedback	+	+
<u>Speaking</u>		
Acting out dialogues	+	-
Monologues based on AI questions	+	-
Practicing how to ask questions and keep the conversation going	+	+
Visual prompts (generated images) as speaking stimuli (individual and collaborative)	-	+
Evaluation and feedback	+	+

The list was confirmed by the results of the survey. The entrance survey revealed that 60% of students had experience with AI communication by the beginning of the winter

semester 2023/2024. At the same time, 49% used AI assistance for study and 30,6% for work, namely for content creation, machine translation, reading comprehension, summarization, classification, question answering, and text generation

Another category of respondents, teachers training future translators, revealed almost equal familiarity with new digital technologies – 61,5 % of the respondents had used AI services before the experiment and found this experience positive (92,3%). The range of usage included writing texts for reading or listening comprehension using active vocabulary/grammar, writing questions to authentic texts for reading or listening comprehension, and making up dialogues using active vocabulary/ grammar.

Table 2
Summary data from the entrance and the exit survey

Question	Students	Teachers
Have you ever applied large language models (LLM) like ChatGPT for the needs of E-Learning?	49%	61,5%
If yes, what kind of tasks have you applied LLM for? ...before the experiment?	Entertainment (44.9%) Education (49%) Work (30.6%)	writing texts for reading or listening comprehension using active vocabulary/grammar (55.6%) Writing questions (33.3%)
...after the experiment?	Text generation (42.6%) Reading comprehension (31.5%) Content creation (27.8%) Answering questions (37%)	writing texts for reading or listening comprehension using active vocabulary/grammar (62.5%) Writing questions (62.5%)
Have you been using an LLM for educational purposes during the winter semester 2023/2024?	64.8%	66.7%
Which LLM do you find more efficient for training communication?	ChatGPT(77.6%) Bard (8.2%) BLOOM (2%)	ChatGPT (76.9%) BERT (15.4%) Bard (7.7%)
How can you describe your experiences with an LLM?	Positive (30%)	Positive (92.3%)
What kind of risks are you exposed to due to LLM in your opinion?	Inaccurate or biased information (53.3%) language mistakes (55%) personal data leaks (21.7%)	personal data leaks (53.8%) Inaccurate or biased information, language mistakes (38.5%)
Do you think there should be restrictions on working with LLM in the educational process?	Partially (56.7%)	Partially (69.2%)

The students' preference of choosing among the LLMs definitely falls on ChatGPT (77.6%) with Bard (8.2%) and Bloom (2%) in their wake. Neither was there any particular surprise in the specified areas of their usage: text generation (42.6%) and content creation (27.8%) are leading among those in need of 'the reverse movement' for making use of the suggested pieces, while reading comprehension (31.5%) as well as question answering (37%) are among those which may be left intact, as aids in the consecutive row of frequency of use and vocabulary building exercises. The teachers' preference of digital platforms nearly mirrors that of the students': ChatGPT leading (76.9%) with Bard (7.7%) and Bert (15.5%) in their wake.

In the teachers' survey the rate of their support of partial restrictions is slightly higher than that by the students (69.2% and 56.7% correspondingly), while the definite 'no' for a complete ban lower than that voiced by the students (15.4% to 36.7%)

In addition, the teachers' survey showed the initial level of communicative skills of the experimental group of students according to 7 criteria (previously mentioned 7C) on a scale from 1 to 5, where 1 is very poor and 5 is very good. All students had the same digital prerequisites - training with digital tools including BYOD (Bring your own device) in blended learning, collaborative communicative spaces.

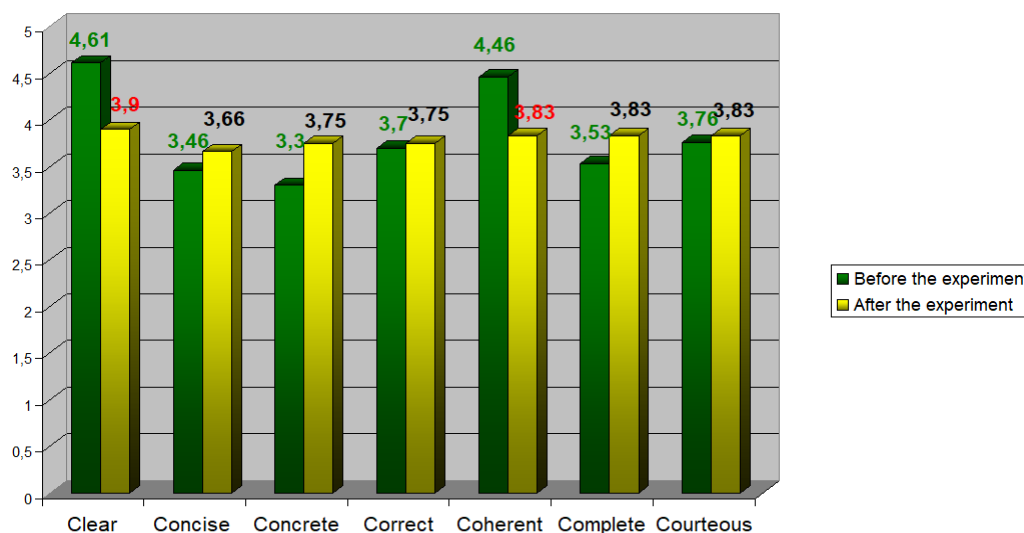


Figure 11: The 7Cs dynamics during the experiment

Also, the final survey contained a question about self-assessment of digital literacy on a 10-point scale, where 0 indicates absolute absence of skills in working with computers, and 10 - absolute possession of all available skills in working with digital devices.

6. Discussion

The feedback from the students and the teachers featured in the entry and exit surveys shows more or less typical experience and evaluation of LLMs at the present phase. As for their use and experience, the paramount percentage is up to 60% and more by the students and somewhat less, 53.8% by the teachers which signifies the formers' greater necessity of using artificial assistance. In short, the higher the language proficiency, the

lower the need for 'a helpful hand' (which can also be seen from the matrix where the students' activities predominate).

There is also a significant gap in the purposes of their usage, with 'entertainment' (44.9%) and education (49%) being leading for the students, whereas the teachers' areas overwhelmingly cover working assignments, writing for reading and comprehension (55.6%), writing questions to authentic texts (33.3%) or making up dialogues (22.2%) which seems quite logical.

The issue of experience description, though, still leaves much to be desired: one-third of the students have not even tried the technologies in question. The same rate is for their positive assessment. The negative experience (around 12%) from a descriptive survey, though, includes lack of reliability (even though the platforms are being constantly further developed!), and, most importantly, the students' awareness of their misconduct (in writing trying to pass the borrowed ChatGPT text as their own production) in terms of their own being robbed of the chance to rack their brains and thus achieve something new.

However, among the negative attitudes towards using LLMs personal data leaks is surprisingly paramount, 21.7%. Compared to the same question in a descriptive survey, though, it rates very low, while the leading disadvantages are misconduct and inaccurate information. The fact can be partially accounted for by the participants' language level: all the students, from year 1 through, gave general feedback of 'yes' or 'no' about the negative attitude, while only seniors, 4-th year bachelors, responded descriptively, specifically about their worries of cognitive skills damage and inability to make efforts of text generation on their own which signifies of their maturity and responsibility for their own future.

Almost none yielded the 'yes' answer to the question of possible restriction which focuses on the academics' summary: one can't fight the inevitable, the LLMs are here enjoying their popularity. The students' 56.7% support of partial limitation of their use signals a serious realization of possible losses in terms of their cognitive development. Of course, the students couldn't specify how to restrict them exactly, but in the course of this study we have already come up with the possible solution of dividing the areas of learning into those that are not vulnerable (speaking practice, listening and reading) and those that are (writing and speaking generation). Thus, once again the blended approach can provide a solution to the arising issues: make a full advantage of LLMs, and further on make the reverse movement to traditional practices of mastering the proposed vocabulary or structures to make the newly acquired skills automated.

Here also belong the negative results of perfecting the 7Cs. In one of the survey positions they even dropped by 2%. No wonder, for the AI are aimed mostly on intensification and ready-made offers without analyzing them, while the previously mentioned techniques (multimedia, spatial platforms and communication simulations) are primarily oriented on blended learning the essence of which is 'show and explain why'. Based on last year's results, all 7C scores improved after a semester of working on collaborative platforms [4].

The teachers' survey responses are clearly different in the way of LLMs aims. Since the proficiency levels of teachers and students should be significantly different in favor of teachers' skills and their decisions on the appropriate exercises to supplement the LLMs use, their questions revealed the following. The scope of LLMs application by teachers was more or less the same as the students' which made an obvious impact in their performance on the introduction of the newly developed technologies (61.5% 'yes', 38.5% 'no' answers).

However, the responses to the question of the tasks employed crucially contrast those given by the students. No ‘entertainment’, no ‘essay generation’, instead, making up active vocabulary and grammar exercises, speeding up their text creation for reading or listening (33.3%) based on the course book material (blended learning again), making up dialogues for students’ mastering (22.2%). Hence the conclusion: the teachers’ experience with digital technologies online is 92.3% positive, 7.7% neutral and 0% negative.

The teachers’ categorical 15.4% in support of digital platforms restrictions in comparison to the students’ position can be logically explained by the teachers’ higher awareness of the danger in the form of the students’ inability of cognitive and creative development as a result of ready-made inputs.

The list in favor of using the LLMs for teaching foreign languages is quite impressive and persuasive, even in a supplementary mode under blended learning: skills enhancing, easy simulation of communication situations, speedy diversifying and facilitating, motivation, time-saving, free access and ease of use, and many more.

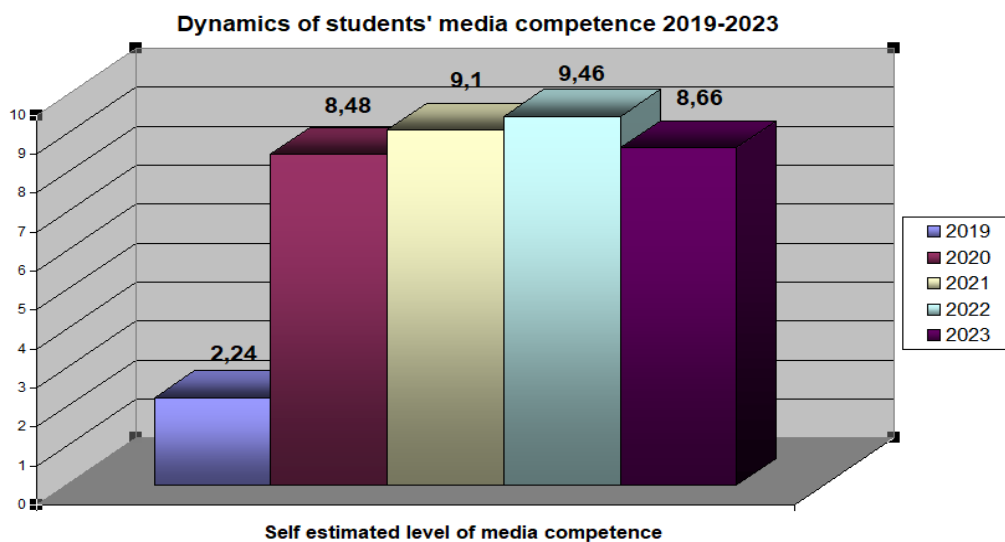


Figure 12: Dynamics of students’ media competence in 2019-2023

As we can see in the figure, the media competence soared between 2019 and 2020 as a result of new digital platforms introduction. However, it only slightly rose with the accumulation and diversity of newly-appeared techniques in the three following years and even dropped insignificantly in 2023, presumably due to the numerous challenging platforms overtaking the human ability to process everything in the due time.

7. Conclusions

Being an unbounded potential of research and education, Large Language Models in all their variety have become indispensable tools for language learning. With their endless possibilities of text generation, vocabulary and material search, as well as communication simulation in the form of question-answer, pronunciation correction and assignment evaluation they have become a more efficient alternative for human tutoring, and thus, an assistant in student-centered approach.

Additionally, their role as supplementary techniques to speed up, refine and enrich the traditional methods of learning, fits well into the already mastered ‘blended’ mode. Even

though there still remain some unsolved areas of misconduct and cheating in writing that may be quite harmful, the joint efforts of technicians and academics alike are on their way to overtake the dangers of hindering cognitive abilities by creating more and more new techniques to enable the offenders gain rather than lose.

The experiment has shown the effectiveness of LLM in certain types of work on the development of four language skills, namely **reading comprehension** (activating topical background, conceptualizing of the vocabulary, textual predicting, skimming, filling in text map, controlling comprehension, summarizing, discussing text issues), **listening comprehension** (making audio and video presentations in a virtual studio, writing dictations conducted by AI, transcribing and summarizing lectures, participating in situational dialogues), **writing** (creating new texts, giving a feedback on students' spelling, grammar, punctuation, clarity, and writing style, correcting and analyzing mistakes, proofreading, creating visual prompts, storytelling, evaluating written products), **speaking** (acting out dialogues, monologues based on AI questions, practicing conversation, creating visual prompts, evaluating monologic and dialogic speech).

As a result of the survey of the participants in the educational process, it was found that the LLM has only limited effectiveness in developing students' communication skills. This is because both teachers and students use AI as a tool (assistant) – a “dictionary”, “translator”, “information aggregator and sorter”, “compiler of texts and tests”, etc. Looking ahead to **future developments**, we see the focus of our research as the specifics of communication between participants in the educational process and an LMM as an interlocutor, i.e. our research will contribute to machine learning, specifically in terms of human-computer interaction.

Overall, the LLMs supplementary nature does not substitute any traditional technologies of language learning but naturally adds to the whole range of modern developments, and the trend of their mutually beneficial merge is easily predictable.

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