Neuropedagogy of Communication-Imitation. Opportunities for the Ukrainian English Teacher

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Abstract: The article talks about the problems of motivation, specificity and effectiveness of using chatbots by Ukrainian humanities students when studying English and, based on the analysis of sociological data, provides new recommendations for the English language teacher.

The purpose of the article is to define the problem of using new communicative-simulation opportunities of today's chatbots "from the inside", i.e. from the point of view of personal motivation of the participants of the educational process. This allowed us to understand the more general and invariant neuro-pedagogical mechanisms of the stimulation anthropomorphic environment and tools in English language learning.

The authors used sociological, statistical, modeling-predictive pedagogical methods in order to outline the real picture of students' use of chatbots in English studies on the basis of existing neuroscience theories and real student priorities and to provide general methodological recommendations for modeling communicative-simulation technology in linguistic pedagogy.

The main result of the article is to objectify the real neuropsychological picture of students' motivation in English-language communication in chatbots, as well as to present five-component gradation of scenarios for chatbots use by students with different levels of academic knowledge, personal pretensions and self-organization abilities.

The theoretical conclusions of the article consist in:

a) confirmation and further development of already existing provisions on the use of simulation technologies;
b) essays on Ukrainian specifics of using chatbots in English language learning in the context of the neuro-pedagogical approach;
c) proving the thesis that English-language chatbots are used outside educational plans and are mostly an optional, spontaneous or personal intension tool in learning a foreign language.

Keywords: *Spontaneous Use of Chatbots, Neuropsychological Mechanisms, Personal Motivation, Anthropomorphic Environment, Usage Scenarios, Prioritization, Communicative Context.*

Introduction

Dale (2016) boldly declared 2016 the year of the chatbot. This decision was due not only to the growing popularity of this tool, but also to finding more of its advantages than disadvantages, which then reached a critical positive qualitative limit. This allowed us to ask the main methodological question: *Can a chatbot be a basic tool for learning a foreign language?* Previously, chatbot technology was thought to hinder more than help the student, but now it is displacing standard e-learning programs and educational websites. This initiative is coming from users (students), not tradition-oriented educators. It is clear that any initiative, even a fairly spontaneous one, should be used pragmatically to benefit educational goals.

The authors drew attention to neurotechnological trends in recent linguistics that draw on empirical evidence of child (student) brain mobilization in speech activities and the role of emotion, motivation, and interest in creating new linguorelevant neural connections, Thadphoothon (2019); Madua (2022).

The authors of this article have carefully studied the domestic content of the newest scientific and methodological works on the topic and have seen that we are dominated by general theoretical works on the newest methods of teaching English in higher education institutions (HEIs), Mareyev et al. (2022), works on borrowing foreign experience in foreign language teaching, Onishchuk et al. (2020) or methodologists focus on developing their own chatbots, Viktorova et al. (2021). However, we noticed: there are no works at all about the neuropedagogical peculiarities of using chatbots when studying English in Ukrainian HEIs, the specifics of neuropsychological mobilization of the student contingent and feedback from it. Our article tries to fill this epistemological and linguomethodological lacuna.

Relevance of the study. We observe that in Ukrainian schools, especially in institutions of higher education (HEIs), the practice of developing and using local for a particular educational space chatbots is spreading, but there is a problem of how to direct to the traditional educational process extra-didactic types of online interaction that students can and want to use.

Unfortunately, for learning grammar, popular or social networked chatbots have little effect at the HEI level. Researchers prove that grammar skills in online self-study are only good at the basic level. Work and communication in chatbots that are part of a university program or offered on academic educational platforms have a good effect, Ki (2019). Therefore,

the study of motivation of interest and activity based on natural neuropsychological determinants is relevant.

The purpose of our article is general and partly philosophical. We will try to understand the neurofoundations of interaction with language and the anthropomorphic chatbot in the student educational environment when learning English in the future discourse. This involves elucidating the private questions of motivation and satisfaction with the use of popular chatbots, including general didactic neurodeterministic mechanisms; how to align what students like with what instructors demand. This will make it possible to provide relevant recommendations to teachers regarding the moderation of communicative-simulation teaching of English, which in Ukraine in the context of Europeanization is becoming more and more widespread. For this purpose, we comprehensively applied the following **research methods**: generalization of historical and current theoretical and methodological sources (system analysis), neurosociological methods (questioning students with determination of deep motives), neuropedagogical extrapolation of valid epistemes, educational modeling, design and prediction.

Data saturation. Our article includes a quasi-experimental randomized survey for data saturation, in particular: an algorithmized questionnaire survey of students (by consecutive questions from specific to general) in humanities departments.

The relevance of the article and the desire of the authors to explore this topic is caused by propaedeutic pedagogical observations. We have noticed that students choose chatbots that emphasize curiosity and emotionality, and teachers emphasize efficiency. But this differentiation is artificial: it is impossible to achieve high efficiency without increasing motivation with emotionally entertaining content.

It is clear that some conscious students with high performance do not need additional motivation to use heterogeneous chatbots, but students with low and mediocre grades tend to communicate in English wherever and however they like. In fact, there is a substitution of concepts: English-language chatting instead of online English study. Almost all students turn to primitive chatbots to do their homework (translation chatbots), to communicate with foreign comrades (popular chatbots in social networks).

Thus, our problem concerns not so much the use of Internet technologies and digital communication technologies in education, as neuropsychological mechanisms of motivation, possibility and realization of expedient for the student presence in didactically expedient online communication, as Zhu, Herring and Bonk (2019). These scholars

distinguished three ways of computer processing instructional discourse, and we will attempt to identify types of motivation, ways of using chatbots, and preferences for certain groups of chatbots depending on the type of educational subject: students with low academic achievement, students with sufficient (high) academic achievement, and English language teachers (in a liberal arts university education setting).

As practicing educators, we observe that students and learners willingly use personal gadgets to learn English, but this often alienates them even from the framework curriculum, and consequently, the linguodidactic material and expected educational outcomes experience significant divergence.

In this article we want to carry out a small sociological didactic cross-section among students and teachers of humanities departments (except foreign languages departments) in order to identify dominant approaches to the choice of communicative-imitative needs and advantages of subjects of the educational process based on natural proper human instincts of interest, striving for novelty, learning and neuro-interaction with the anthropomorphic environment. Such a goal is caused by many partial problems, one of which is the replacement of communication with a teacher by communication with artificial intelligence in the study of English. We also take into account that the majority of Ukrainian students have a satisfactory or average level of English when they enter the humanities departments. This allows them to improve their competencies on their own through self-study or study-pleasure. This phenomenon has both positive and negative aspects. Also, the aim of the article is to define the Ukrainian peculiarities of using chatbots: this is the "digital psychology" of educational subjects, open access to communicative-simulation resources in the Ukrainian segment of the Internet, and the discussion between traditional and innovative tendencies in Ukrainian linguodidactics.

Ethics of the article. We agreed with the ethics committees of Ismail State Humanitarian University and Vinnytsya Pedagogical University named after Mykhailo Kotsyubinsky (Ukraine) to conduct a sociological survey, and we also state: teachers and students gave voluntary consent to participate in the survey and use the data to write a scientific article.

Neuro didactic potential of communicative-simulation programs. Opinions of respected scholars

Valid for our study is the concept of techno-neuro-pedagogical systems (TNPS) in education. These are complex processes of interconnected actions designed to facilitate the construction of knowledge in virtual environments. TNPS goes beyond traditional pedagogy by integrating aspects of education, neuroscience, and technology. This integration allows for the development of the student's cognitive profile, thereby facilitating personalized learning experiences, Silva-Lopez et al. (2015). In our experiments, we have observed an increase in the importance of the thinking styles of students who learn in interaction with such environments, and in the near future we expect a neuroeducational "student-artificial intelligence" interaction.

However, let us dwell briefly on the evolution of neuropedagogical approaches to simulative learning. The first observations correlating with our topic were made back in the middle of the twentieth century. They concerned the nature, completeness and communicative appropriateness of speech content in natural, educational and artificial communicative environments, Berelson (1952). Already then, the problem was outlined, which we are trying to solve to the best of our modest strength: sufficient and qualitative non-anthropological (computer, artificial, augmented, simulated) educational communication for the acquisition of foreign language skills. And since the early 2000s, works on evaluating the effectiveness and expediency of using the communication-simulation capabilities of the computer and the Internet for linguistic pedagogy have begun to appear Fryer and Nakao (2009).

Unfortunately, even with the neuropedagogical approach, by now chatbots in foreign language learning are not considered autonomous translators and replicators of knowledge, but only auxiliary. This, in our opinion, is not so much due to imperfect technology as to the lack of anthropomorphic options associated with the subject-centeredness of linguodidactics, its cultural and ocasional planes. However, chatbots are more like a neural network in its unconcealed form, requiring a change in didactic scenarios, Dokukina and Gumanova (2020). They are more flexible than the psychology of the average teacher, and more focused on the personal educational tendencies of students based on microlearning and personal adaptation. On the other hand, it is now possible to relieve the teacher from excessive individualization and differentiation of linguodidactic material and methods.

In recent years, there have been many studies on the acquisition of English through mobile applications, including chatbots. There are studies on the rating of chatbots among the students of specialized foreign language departments. Such studies are mostly experimental and aim either to study the overall effectiveness from the use of chatbots in learning English, or to create a certain rating of such digital applications. For example, last year scientists proved: the most popular English topics (from *Me and My Family* to *COVID-19*) are the most relevant to learn with ANDY chatbot, and the least relevant was ELIZA chatbot, Hakim, and Rima (2022). We are going to conduct our own study of student preferences for popular chatbots in Ukraine as part of this article. It is interesting that simple and time-tested chatbots, which can help to solve narrow, only lexical-phraseological or specific grammatical problems, remain relevant. For example, the ELIZA chatbot has been in use since the 1960s and has successfully stood the test of time, Weizenbaum (1966). Understandably, the interface, speed of feedback, and other design points have already improved, but the relevance of pre-communication level chatbots (not communicating, but advising) remains valid. Another thing is that students are always in pursuit of fashion, new trends in the fields of IT and social communications, so they avoid old programs, even if they are effective.

Attempting to somehow qualify or classify chatbots faces the problem of the parameters of such qualification, and we have not found a neuro-oriented classification. The analytical hierarchy of such classifications is always multimodal. It is easy to qualify an individual program comprehensively, while only narrow parameters can be applied to a set of chatbots. For example, Smutny and Schreiberova (2020) analyzed educational chatbots for Facebook Messenger, which is most commonly used by adults. Researchers chose the maximally framework attributes of assessment - anthropomorphic, academic, accessibility, and influence. They concluded that different chatbots are at different stages of evolution, but even underdeveloped ones are good for blitz communication, but not for systematic foreign language learning. Therefore, such applications can only be auxiliary when using Facebook Messenger.

So far, the most common components of the integrated neuro-approach of using chatbots in learning English are considered to be technology and psychology, which is determined by the ways and tendencies of the learners' interaction. Here we can also talk about some personal meaning of being in a distant dialogue: this meaning can be communicative, entertaining or educational proper. Two years ago, Chinese scientists drew

attention to this and tried to investigate and compare the neurocommunicative potential of conversational and pedagogical chatbots, (Yin & Satar, 2020). The result showed that this potential is different and complementary.

To determine the institutional acquisition of English-language competence (college or university), we wondered if there was significant divergence in the use and effectiveness of the two types. In an experiment organized by Yin and Satar (2020), participants had the opportunity and educational design to switch between pedagogical and conversational chatbots. The result was unexpected: students with low levels of English competence felt more comfortable and benefited subjectively from pedagogical chatbots, while students with high levels benefited from conversational chatbots Yin and Satar (2020). From this we can draw important conclusions: a low level of initial competence promotes less conscious, and therefore - instinctive and intuitive communicative and neuropedagogical interaction. In addition, different types of simulation programs provide an opportunity to realize one's own sense of communication-learning. For example, low- and intermediate-level students satisfied their need to learn vocabulary in pedagogically organized communication rather than in contextual live communication; they felt safer in such modified communication. Students with high communicative English competencies, on the other hand, had open-ended pretensions and often expressed dissatisfaction with their interactions with chatbots. The sensory and communicative pursuits of such students corresponded to the dynamics and constant sophistication of conversational chatbots, which generally corresponded to both the communicative and technological openness of simulated learning.

We are impressed by studies in which neuro educators and smart digital product technologists are trying to predict new perspectives on learning English through artificial intelligence. Practical research so far shows the limited possibilities of chatbots in learning English as a second language, although their use adds competence and motivation. The main advantage of chatbots is increased communication, the number of brief communication interactions, and almost always positive motivation and interest (Kim et al. 2019). The overall conclusion of scholars is that software developers should not emphasize maximum clustering (thematic, functional, social diversity), but rather a linguistic and educational orientation that does not exclude entertainment, private communication, or gamification of such

applications. This could have good educational implications in the near future.

The use of chatbots in learning English is particularly effective for those regions whose native languages have a dramatic morphological difference from English. Experiments with randomized groups of students who used communication-simulation technologies showed a significant increase in listening skills, which is important in communication (Kim, 2018). Consequently, against the background of heteromorphic neural connections responsible for speech and semantic-associative brain correlates, a new neurolinguistic structure is better formed. This further proves that live speech or its machine simulation is much more effective than "instructional" methods. Especially for those who are not influenced by English-speaking culture. About the latter, let us note: Ukraine, which intensively pursues a European integration policy, is an active consumer of it, does not belong to such regions. We observe a spontaneous assimilation of the active English vocabulary even by persons who do not specifically study English. This factor will be discussed in more detail in the third part of our study.

For a complete picture of the methodological revue, it is worth mentioning that simulation technologies, bots, artificial intelligence and other neuropedagogical tools are complemented by the use of digital online media, which has initiated a new paradigm in the design and methodology of educational content, where multimodality has become a common and prominent feature. The continuous development of technology and digital media requires new methods and paradigms that include techniques related to the subconscious behavior of the brain. It is crucial to collect data through neurological processes that allow evaluating the user experience and its impact from a more personalized perspective. Neurotechnologies now encompass a number of tools and techniques that facilitate the evaluation of the context of learning based on user experience when compiling unconscious brain responses. These techniques, combined with other quantitative and qualitative assessments, may provide valuable information in the future when using the latest diagnostics (Implicit Response Tests (IRT) and Implicit Association Tests (IAT).

The study of the relevant literature allows us to conclude: the role of a foreign language teacher as its competent speaker should not be underestimated, but in the modern space of communication-simulation opportunities their participants are considered as agents of communication (communication) and will soon be able to perform autonomous functions in

the conditions of proper neuro-oriented methodological support of anthropomorphic simulation In our opinion, the teacher in such educational space is also an agent, but so far favorably different Researchers prove that communication-simulation capabilities implement a multi-agent communication system, where the chatbot is a conversational and didactic agent. In this case, if the teacher is a single agent, then in the system of communicative-simulation tools can be used at once several technical agents. That said, a current chatbot has the obligatory three-component educational design - database, input processing (natural speech), knowledge reorganization/replication option, and integral unit (Memon et al. 2018). The presence of these features allows for multi-agent communication using multiple chatbots and multiple users.

A neuro sociological picture of the use of chatbots for learning English in Ukraine and feasible recommendations for improving efficiency

The neurophysiological parameters of simulative technologies have so far been well tested in populations of humanoid monkeys, which in laboratory studies at the primitive level reveal all the advantages and disadvantages of associative unconscious learning, but to apply to humans, we believe, is better guided by neuro sociological ways, group participatory and spontaneous communication (Guevara, 2021).

Even a general survey of Ukrainian students shows: they are most pleasant to use chat bots offered by social networks in the mode of online learning due to military actions and the COVID-19 epidemic. Such programs, firstly, work and are updated 24x/7, secondly, contain optimized, positive and optimistic content and user-friendly interface. Recently - it's mostly chat bots in Telegram or popular educational platforms. Unfortunately, many Ukrainian teachers are not concerned about the ergonomics and design of official teaching material.

Inductive and tendentious study of the questionnaires received during the sociological survey immediately allows us to draw an intermediate conclusion: motivation, positive disposition, attunement to youth psychology, and flexibility are good features of chat bots for learning English in the Ukrainian segment of the Internet, but methodologists are more interested in efficiency and though compliance with the framework expectations of the educational process. That is why lately educators and linguistic methodologists have been asking the question about efficiency. For example, W. Huang, K. Hew, and L. Fryer, K. Recently carried out a

systematic review of chatbots designed for foreign language learning. Using Garrison's diagnostic social presence technology, these scholars analyzed currently available empirical research and developed some important recommendations for the selection of chatbots: *Our findings identified three technological capabilities (timeliness, ease of use, and personalization) and five pedagogical applications: , simulation, explanation of meaning, trust, and social presence* (Huang et al. 2022). The general conclusion is this: social presence, students' inclusion in youth subculture are the most attractive attributions of communication-simulation relationships on their daily used gadgets. We also noticed that moderate cognitive engagement in synergy with emotional inclusion in social communication are the main factors of linguistic chatbots' attractiveness for student youth. Students contrast remote independent or group study of English with classroom study on the following basic attitudes: compulsion - effortlessness, certainty - indiscretion, discipline - liberation. We hope that educational and technological advances, combined with methodological innovations, will weaken or nullify these oppositions.

We have noticed that many lingodidactic chatbots are created according to the principle of a certain dominant, cluster ("chip"). They emphasize one of the communicative aspects, for example, emotional-notional, erudition, entertainment, etc. In their overall picture is also observed the principle of clustering (designed for use by a certain type of customer), and in the didactic they are complementary. Below we offer a small classification of chatbots for learning English according to their communicative dominant.

In this regard, we formulated one of the important press positions of our study: students with different degrees of academic achievement (hence motivation) will give different priority to the use of chatbots in learning or in communicating in English in general. Therefore, we divided the 158 students who participated in the survey (based on their professors' current assessment) into two formal groups: low/moderate-performing students (72) and sufficient/high-performing students (86). All students responded in writing to the developed questionnaire regarding general and educational use of chatbots regarding English-language competencies. The questions were arranged following an inductive gradation: from specific (which chatbots do you like/use most often) - to general (motivating you to turn to a certain type of simulated communication programs). We summarized the results of the survey in Tables 1 and 2.

Table 1. *Prioritizing the use of educational and extracurricular English-language chatbots by low/moderate-performing students*

Chatbot type	Example	Explaining
Translated	WordContextBot	Allows you to solve elementary translation problems and do the simplest homework.
Optional	American	You can quickly compensate for the current lack of knowledge of the material (reference function).
Entertainment	Mondly	You can learn English with a game, a quiz, i.e. to motivate yourself not by linguodidactic, but by emotional factors.
Cultural	Fixmebot	Allows you to learn how to avoid elementary spelling. The motivation is "avoiding punishment"

Table 2. *Prioritize the use of educational and extracurricular English-language chatbots by students with sufficient/high academic achievement*

Chatbot type	Example	Explaining
Optional	American	Allows you to quickly fill in the gaps of "ignorance" against the background of a general understanding of the communicative situation.
Step-by-step	English with Nessie	Allows independent learning of English in parallel with institutional learning, performs a complementary function.
Comprehensive	AlphaEnglishBot	Allows parallel formation of competences in vocabulary, listening, and grammar. May contain an entertainment component as additional motivation.
Artificial Intelligence Simulator	Replika	Motivates by the fact that it responds to the student's feedback, and therefore changes, complicates the tasks and the communication itself

The table was compiled by the authors based on the results of a sociological survey

The general taxonomies of the chatbots are arranged in descending order in the tables, so the ranking corresponds to priority. As you can see from the table, we also asked students to motivate their responses reflected in the right-hand columns of the tables.

Also, in concluding the ranks in the tables, we created our own classification of chatbots for learning English based on the dominant function that most motivated students.

In the tables we have displayed only the priorities, but this does not mean that the top-student does not use, for example, optional programs. For example, elementary chatbots (optional) were the most popular for 67% of Group 1 students (low achievement) and 43% of Group 2 students (sufficient and high achievement). From this we realized that there is a problem of primitivization of learning as a problem of simple chatbots and students in both groups who use them to a lesser or greater extent. Such bots "simplify the academic life" of the student.

Based on the analysis of the sociological survey of students, and after comparing these results with theoretically motivated patterns, we were able to offer a number of recommendations for teachers of English in humanities Ukrainian HEIs in terms of moderating students (their facilitative support when using chatbots).

1. From a linguodidactic point of view, we should emphasize the obligatory use of several chatbots by students, while they (according to surveys, often "sit" on their favorite chatbot.)

2. Students should use teacher-licensed chatbots and personal chatbots. Since the simultaneous use of multiple Internet and digital technologies (multi-agent communication, Memon, Jalbani, Shaikh, Memon and Ali (2018) has been proven effective, we suggest using both academic and popular (including social media chat)-bots) for constructive collaboration between teacher and student, development of a unified educational online space, in which university digital resources will be an important, but not the only and not the main component. At the same time, the authors of the article offer a dichotomous classification of chatbots used by students: personal chatbots and teacher-licensed (educational institution) chatbots. At the same time, we noticed that some teacher-recommended chatbots for learning English coincide with the students' declared most interesting ones. This allows us to identify an intermediate (contact) zone of their classification.

3. By extrapolating sociological trends to the linguistic-methodological requirements to communicative-simulation or simulated learning, we formulated a gradation of scenarios that would be most effective hypothetically. To avoid unnecessary methodological entropy, we took into account sociological data (in fact, educational trends) and identified five types of the most effective scenarios for using simulation-communication bots. We arranged them in a table in descending order of certain educational and increasing uncertain personal-situational variations. We did not take into account here the possibility of an optional instant chat bot (e.g., for help or

translation), but only the systematic handling of the bot. We also did not consider possible global scenarios, such as the possibility of generating discourse entirely, because then the chatbot becomes a generic service tool rather than an educational one. The recommended invariant scenarios for the development/use of chatbots for learning English in Ukrainian HEIs are as follows **(Table 3):**

Table 3. *Scenarios for the use of chatbots in relation to the degree of independence and effectiveness*

Type of scenario	Academic/Technological Essence	Predicting effectiveness
Step-by-step	Against the background of relative communicative flexibility allows for planned knowledge.	Low
Longread Scenario	Organizes a long dialogue, so requires high self-organization and active participation.	Moderate
Gamified	Strongly motivates students, but emotional factor prevails rationally.	Moderate
Project	Needs high motivation for constructive-creative communication.	High
Free space	Appropriate only for highly organized students with already high level of competencies.	High

The table is the result of the author's work

Thus, the most universal for all groups of students are step-by-step scenarios (the level of academic freedom, unfortunately, is minimal). We agree with the opinion of Pérez et al. (2020) and his colleagues that the current use of chatbots in learning English can serve an auxiliary or agentive function. The authors identified several dozen educational or para-educational chatbots and concluded that only step-by-step scenarios with relatively defined criteria can build systematic language knowledge. Otherwise, foreign language learning is spontaneous rather than systematic and competently oriented in the context of the expected outcomes in HEIs.

The use of flexible scenarios, which have little to do with academic expectations, is still appropriate in humanities non-translation departments: they form soft-skills. We recommend them to students with low to moderate motivation. Of course, the ability to modify available scenarios by the student himself is an important didactic competence within the framework of academic and general psychological flexibility.

Conclusions

Conclusions and Results. The integration of neurotechnology in English language research has provided valuable information on individual differences in language processing, the role of working memory, attention, and executive functions based on simulation and stimulation. These findings have the potential to develop targeted interventions and personalized language instruction tailored to specific cognitive profiles and learning needs.

Neuro technology has allowed researchers to explore the effects of different training methods and interventions on language-related processes in the brain. By combining neuroimaging techniques with behavioral measurements, researchers can assess the effectiveness of instructional strategies, language interventions, and educational tools in promoting language learning and proficiency.

The main results of our gender are as follows:

1. We sociologically examined the priorities of students with different academic backgrounds in using simulated communication relationships (chatbots) and saw that they had different motivations for using chatbots to learn English or at least to solve their own tactical academic problems. However, the neuro psychological basis of the different priorities is the same and is based on the neuro psychology of satisfaction - cognition - interaction in an anthropomorphic environment.

2. We have designed a five-part system of scenarios for using chatbots to learn English, which can be used in the development of neuro didactic support. It is based on a gradual transition from less to more academic freedom. This will take into account the motivation, the level of knowledge and the ability of students to learn independently. Actually, the student himself should feel to what level (scenario) the use of learning chatbots.

Also valuable were the private conclusions within the objectives. We realized that students at the lowest grade level (satisfactory/unsatisfactory) are proficient in three types of English vocabulary: basic colloquial, slang and trendy, which are learned spontaneously through interaction with English-language interfaces of popular websites (for example, online stores, sites , mass computer software, social networks, as well as youth English contaminated vocabulary used in the background of native, Ukrainian (like ok, absolutely, easy, girl, bad, team, device, startup, spoiler, level, etc.).

In our article we continued the discussion of Qinghua and Satar (2020) on the effectiveness of educational and conversational chatbots in learning a second foreign language. Interestingly, these scholars proved without regard to English: pedagogical bots are most relevant for low-

achieving students (Qinghua & Satar, 2020). In our case (against the background of spontaneous and everyday knowledge of English vocabulary of the majority of Ukrainian youth) we have the opposite result: students with low performance and motivation to non-systemic learning English are most stimulated by non-pedagogical communication, therefore, conversational chatbots, social networks and functional applications, programs and sites.

We also saw that students with little motivation for classroom inter-subjective communication in English compensate for their educational-cognitive and communicative need to communicate with chatbots with a simple interface and rudimentary communicative context. However, this practice reminds us of the reservations of Thompson, Gallacher and Howarth (2018), who proved: among first-year universities, it is dangerous to completely replace human-human communication with human-artificial intelligence (chatbot) communication, because the results of such regular interaction will not meet the expected communicative, social-psychological, and praxeological competencies. We observed that the projective and socially constructive ability of students with low to moderate levels of offline communication is mediocre. Such students are predominantly introverts, communicating with artificial intelligence on narrow and limited topics (mostly on interests), which does not meet expectations.

As a result of our research, we confirm Zamora (2017) opinion about anthropomorphic and socially oriented limitations of excessive communication with chatbots (especially spontaneous rather than complementary with traditional learning) and recommend teachers not only to use augmented simulated communication properly, but also to control types of chatbots, way and motivation of their use by students. This is especially true for students with low levels of academic achievement, who tend to poorly follow at least a personally defined educational trajectory.

Research limitation. Our colleagues a few months ago clearly outlined the main tactical problem of using simulation and communication tools in foreign language learning: we need to develop private and publicly available chatbots that could personalize learning, assess dynamics, and contain motivation (Viktorova et al. 2021). This is an ideal task that is difficult to achieve. However, in order to achieve such tasks, systematic experimental research is needed that would show a detailed picture of the effectiveness not of individual author's chatbots, but of the communicative-simulation potential of the Internet environment for Ukrainian students in general.

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