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Digital Learning Tools in the Development of Foreign Language Skills among Students in Higher Education

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Abstract

In the context of the digital transformation of education, interactive foreign language teaching is particularly relevant, as it can ensure high student motivation, development of professional communicative competence, and adaptation to the changing educational environment. The growing need for specialists able to communicate effectively in a foreign language in the context of intercultural interaction actualizes the search for innovative methods of foreign language training. The study aimed to investigate the impact of interactive digital technologies on the formation of foreign language communicative competence of higher education students; the object was the process of professionally oriented foreign language teaching in higher education. The methodology of the study included pedagogical observation, analysis of educational practices, comprehensive assessment of the level of competence formation according to four criteria, and testing of the author's interactive learning program. The experiment was conducted at the Academy of Labor, Social Relations, and Tourism and Cherkasy State Business College with the participation of students majoring in Vocational Education. Digital Technologies" and "Vocational Education. Economics". The results showed a significant increase in the proportion of students with high (from 11.9% to 35.7%) and sufficient (from 14.3% to 23.8%) levels of foreign language communicative competence, as well as a decrease in the proportion of participants with low levels (from 35.7% to 9.5%). The most effective were educational chatbots, VR scenarios, and simulation and role-playing games, which provided language autonomy, flexibility of communication, and immersion in a professional context. The practical significance of the study lies in the possibility of scaling the interactive model to different educational programs, developing typical scenarios of digital interaction, and improving the methodological training of teachers to work in a mixed environment. The results obtained confirm the feasibility of integrating digital tools into the system of foreign language education to form flexible, professionally competent specialists.

Keywords: interactive technologies, foreign language communicative competence, digital learning, chatbots, virtual reality, higher education, professional speech, blended learning

1. Introduction

In the twenty-first century, a foreign language has become not only a means of interpersonal communication but also a key tool for professional realization in a globalized labor market. Against this background, the requirements for the quality of foreign language training of higher education students are growing, especially in terms of developing professionally oriented communicative competence. Traditional teaching approaches focused on learning grammatical rules and translating texts increasingly fail to meet the needs of a modern student who studies in a digital environment, is in a constant flow of information and expects active, adaptive, interactive formats of education. At the same time, the ability to produce coherent and contextually appropriate professional speech becomes a key component of foreign language communicative competence in higher education. In this regard, interactive technologies, such as educational chatbots, simulations, role-playing games, adaptive platforms, and virtual reality, are considered to be effective means of enhancing foreign language learning. Numerous studies have shown that interactive forms of learning can increase motivation,

develop intercultural communication skills, promote critical thinking and language autonomy (Al-Hoorie & AlShakhori, 2025; Batsurovska & Lymar, 2024; Hwang & Zhang, 2024; Zhou & Divekar, 2025). In particular, researchers emphasize the potential of combining interactive strategies with digital tools to personalize the learning process and provide a flexible response to the needs of students. At the same time, the scientific literature also points to several of problems, including the lack of teachers' training in working with digital technologies, limited material and technical resources, and the lack of common approaches to assessing the effectiveness of interactive learning (Estaji, 2024; Fornasiero & Tolio, 2024; Lo, 2023; Nami, 2023b).

Despite the achievements, the issues of systematic implementation of interactive technologies in vocationally oriented foreign language teaching in higher education institutions, as well as empirical evidence of their effectiveness in real educational settings, remain insufficiently studied. There is a lack of in-depth research analyzing the impact of specific interactive tools (VR scenarios or chatbots) on the development of communicative competence in students of non-language specialties. The issue of the didactic combination of interactivity, digitalization and professional orientation of the educational process is also relevant.

In this context, our work aims to investigate the impact of interactive digital technologies on the formation of foreign language communicative competence of higher education students in the university environment. To achieve this goal, authors aimed to: characterize modern scientific and methodological approaches to interactive foreign language teaching; analyze the effectiveness of different types of interactive tools; conduct pedagogical observation in real conditions; interpret the results taking into account existing scientific approaches.

2. Literature Review

Modern scientific research convincingly demonstrates the effectiveness of interactive technologies in the process of foreign language teaching in higher education. Researchers pay considerable attention to digital learning environments and personalized learning paths. For example, the use of artificial intelligence in the form of pedagogical agents and chatbots is recognized as an effective tool for building learner autonomy and increasing motivation for foreign language communication (Al-Hoorie & AlShakhori, 2025; Chen, 2025; Kim et al., 2024; Elov et al., 2025). An analysis by Batsurovska and Lymar (2024) shows that digitalization only becomes educationally meaningful if it is harmoniously integrated with interactive pedagogical strategies. Systematic reviews and empirical studies show a growing interest in blended learning models that combine face-to-face, distance, and independent activities with digital support (Peltola et al., 2025; Zhou & Divekar, 2025; Le et al., 2023; Reddy & Lakshmi, 2024). In this context, adaptive mobile applications, peer-to-peer platforms, educational social networks, as well as augmented and virtual reality, play an important role in creating the effect of immersion in the language environment (Hayes et al., 2021; Hwang & Zhang, 2024; Shabur et al., 2025; Lo, 2023).

A number of works emphasize the formation of key competencies through interactive practices. In particular, the implementation of critical thinking through cases and debates (Reddy & Lakshmi, 2024), the development of professional vocabulary through simulations (Duran, 2024), and the improvement of digital literacy through learning in Moodle or Google Classroom (Wang & Chen, 2024; Li, 2024; Lin et al., 2025) prove the growing role of technology in the development of comprehensive foreign language competence. Studies have also documented a decrease in students' anxiety and an increase in confidence when using intelligent language assessment systems and AI-based game environments (Elov et al., 2025; Hwang & Zhang, 2024). These results correlate with the findings on the impact of environment on the emotional state of learners and the effectiveness of their learning (Kaiqi & Kutuk, 2024; Estaji, 2024; Alzahrani & Saleh, 2025). Some works emphasize the need to rethink the role of the teacher in the digital environment, as well as the challenges associated with designing quality digital materials and resources (Nami, 2023a; 2023b; 2023c). At the same time, researchers emphasize that the use of modern technologies is justified only if they are methodologically appropriate and meet the learning objectives (Li, 2024; Sun & Medic, 2021; Huang, 2024).

In particular, Le et al. (2023) analyze the mechanisms of survival and professional growth of foreign language teachers in the context of digital transformations, emphasizing the role of pedagogical flexibility and adaptability. In turn, Lo (2023) highlights the prospects for using digital learning in ESL classrooms, noting both the potential and challenges associated with motivation and effective digital interaction. No less significant are the works on designing learning content. A series of papers by Nami (2023a, 2023b, 2023c) discusses the concept of digital learning materials, emphasizing the importance of multimedia and interactivity as conditions for student engagement. In the same context, the study by Sun and Medic (2021) demonstrates the effectiveness of using wiki platforms to enhance students' written foreign language production, especially in a collaborative format.

A separate group of studies focuses on motivational factors and the affective background of learning. For example, Kaiqi and Kutuk (2024) examine the relationship between students' emotions and their perceptions of online foreign language teaching, and Estaji (2024) analyzes the development of teachers' professional reflection through the prism of language

assessment. The work of Alzahrani and Saleh (2025) complements this issue by outlining the technological landscape of language education in Saudi Arabia and the impact of the local context on the perception of innovations. Li's (2024) study is noteworthy for its comprehensive analysis of foreign language teachers' cognitive attitudes that affect the effectiveness of digital technologies. The issue of developing specialized skills, in particular medical foreign language competence, is addressed by Lin et al. (2025), proving the prospects of peer-assisted learning. Wang and Chen (2024) present a blended learning model for students of private colleges in China, which has proven to be effective in developing listening and speaking skills.

It is necessary to pay special attention to research pointing at the tactical aspect of the introduction of digital tools into vocational and professional training. It is stressed that a strong leadership vision is a pillar of successful implementation of digital innovations in learning, and the support of the managers is a critical point of flexible adaptation of interactive technologies. Another research emphasizes the necessity of planning of the digital transformation in training, which is based on the fact that the success of the process lies in combining pedagogical and technological planning. The digital platforms have also been found to provide positive emotions and cognitions in learners hence increasing their motivation when learning a foreign language. The application of these approaches in the university setting can also be justified by the existence of an analytical model that presents the logical connection between digital tools, blended learning principles, and building soft skills, which is why their combination is especially relevant and productive.

Thus, the modern scientific paradigm clearly recognizes the growing role of interactive and digital technologies in foreign language training, emphasizing their ability to form flexible, adaptive, professionally competent individuals capable of effective communication in an intercultural environment. At the same time, some problems remain unresolved, such as the insufficient level of methodological training of teachers in the integration of digital tools and the lack of empirical data on the long-term impact of interactive technologies on the sustainability of foreign language competence.

3. Method

The study was conducted during one semester of the 2024/2025 academic year on the basis of two higher education institutions of Ukraine - the Academy of Labor, Social Relations and Tourism (Kyiv) and Cherkasy State Business College (Cherkasy). The study involved 42 second-year students majoring in “Vocational Education. Digital Technologies” and “Vocational Education. Economics”. The main method was pedagogical observation of the level of foreign language communicative competence before and after the introduction of interactive digital technologies. The experimental program included the use of educational chatbots on based ChatGPT, simulation role-playing games with elements of gamification, VR modules for modeling professional situations (Mozilla Hubs), as well as online platforms Moodle and Google Classroom with elements of formative assessment. To measure the results, a comprehensive assessment methodology was applied according to four criteria (linguistic correctness, lexical diversity, dialogic professional interaction, orientation in professional situations), described in Appendix A. All indicators were evaluated on a five-point scale, after which, based on the average arithmetic values, the level of competence was established in accordance with the classification given in Appendix B. The program of introducing interactive technologies was developed in accordance with the principles of student-centeredness and digitalization.

4. Results

In modern higher education, there is a shift in emphasis from traditional foreign language teaching to interactive forms that involve active participation of the learner, dialogic communication, modeling of authentic communication situations, and the use of digital environments and technologies. Interactive learning is seen as a pedagogical strategy that promotes critical thinking, language autonomy and intercultural communication. From a scientific and methodological point of view, interactive learning is based on the principles of communicative, activity-based, competency-based, and socio-cultural approaches. In particular, the communicative approach involves organizing the learning process as an interaction between partners, while the competence approach focuses on achieving levels of language proficiency that meet real language needs. In this context, interactivity is not limited to the forms of presentation, but is manifested in the following methods: discussions, brainstorming, case studies, debates, simulations, and educational games.

Modern research shows that combining interactive approaches with digital technologies significantly increases the effectiveness of foreign language training. For example, digital platforms, online environments, language mobile applications, and artificial intelligence-based intelligent agents (such as ChatGPT) not only expand access to resources but also create personalized learning paths (Al-Hoorie & AlShakhori, 2025; Chen, 2025). According to the results of the analysis published by Batsurovska and Lymar (2024), the digitalization of the educational process improves the quality of education if it is accompanied by well-chosen interactive strategies. The study by Peltola et al. (2025) presents the results of a systematic review of the impact of online courses on student engagement in language learning: interactive formats contribute to increased motivation and achievement.

No less significant are the findings of Hwang and Zhang (2024), who studied the impact of a digital game based on a

computer agent on English language learning outcomes. They found that interacting with the agent in a game format promotes deeper learning and builds language confidence. Similar results are demonstrated by Elov et al. (2025), who emphasize that intelligent language assessment systems reduce learners' anxiety while increasing their autonomy. Thus, effective interactive learning in higher education requires the integration of digital tools, a focus on student-centeredness, the development of soft skills, and the creation of conditions for interpersonal and intercultural interaction. Preference is given to blended learning models, which synchronize face-to-face, distance, and independent work, with the active use of digital tools, from online services to virtual and augmented reality (Zhou & Divekar, 2025; Le et al., 2023).

In the context of the digital transformation of higher education, rethinking the methodology of foreign language training for higher education students is of particular relevance. Modern students are increasingly studying in a mixed or fully digital environment, where traditional forms of presenting educational material are losing their effectiveness. Against this background, interactive technologies appear not only as a means of increasing student engagement, but also as a powerful tool for developing intercultural communication, critical thinking, and linguistic autonomy. They contribute to the implementation of a competency-based approach, the construction of personally oriented learning paths, and the unlocking of students' potential in the virtual educational space. Table 1 summarizes the leading scientific and methodological approaches to interactive foreign language teaching in higher education, taking into account modern digital practices and research findings.

Table 1. Scientific and methodological approaches to interactive foreign language teaching in higher education in the context of digital transformation

Approach	**Essence**	**Forms of implementation with digital technologies**	**Examples of application according to research**
Communicative	Language as a means of communication in real contexts	Online communication, debates, dialog simulators (chatbots)	Al-Hoorie and AlShakhori (2025); Zhou and Divekar (2025)
Activity-based	Language acquisition through meaningful tasks	Project-based learning, web-quest, simulations, augmented reality	Reddy and Lakshmi (2024); Hwang and Zhang (2024)
Competency-based	Results-oriented: language, socio-cultural, digital competencies	Blended learning, modules on Moodle, Google Classroom platforms	Batsurovska and Lymar (2024); Peltola et al. (2025)
Personally oriented	Individualization of learning trajectories, taking into account the interests of the applicant	Adaptive mobile applications, AI-enabled systems	Chen (2025); Kim et al., (2024)
Interactive and social	Interaction, collaboration, dialog in the digital space	Educational social networks, peer-to-peer platforms, interactive forums	Le et al. (2023); Elov et al. (2025)

Source: created by the author based on Al-Hoorie and AlShakhori (2025), Batsurovska and Lymar (2024), Chen (2025), Elov et al. (2025), Hwang and Zhang (2024), Kim et al. (2024), Le et al. (2023), Peltola et al. (2025), Reddy and Lakshmi (2024), Zhou and Divekar (2025)

The summary of Table 1 shows that the effectiveness of interactive foreign language teaching in higher education is ensured by a comprehensive combination of pedagogical approaches and technological tools. The use of digital platforms, simulations, intelligent agents and mobile applications not only diversifies the educational process but also allows students to develop a strong internal motivation for foreign language communication and learning interaction.

Modern foreign language training in higher education involves not only mastering lexical and grammatical material, but also developing students' ability to communicate effectively in professional situations. The introduction of interactive methods and digital tools allows us to model authentic contexts, develop intercultural competence, and increase motivation and responsibility for learning outcomes. However, along with their wide possibilities, interactive technologies are accompanied by a number of methodological and organizational limitations due to both technical and psychological and pedagogical factors. Table 2 systematizes the main didactic possibilities and limitations of using interactive methods in the process of forming professional foreign language communication of higher education students.

Table 2. Didactic possibilities and limitations of interactive methods in the professional foreign language training of higher education students

Category	Category Opportunities	Limitations
Motivational potential	Creating learning situations that are close to real communication; gamification of the process	Attention overload due to a large number of digital stimuli
Individualization of learning	Adaptation of content to the level of knowledge and learning style of the student (adaptive platforms, chatbots)	Need for additional time to create personalized resources
Communicative competence	Training different types of speech activities in an interactive environment	Possible difficulties in organizing live speaking practice without a mentor
Critical thinking	Using case studies, debates, simulations to analyze situations and argue positions	Requires a high level of methodological training of the teacher
Cooperation and socialization	Development of teamwork skills, dialog, conflict resolution	Partial virtualization of communication can reduce the depth of interpersonal interaction
Digital literacy	Mastering modern tools for professional communication in the digital environment	Lack of adequate technical support or digital skills among some students

Source: created by the author on the basis of Al-Hoorie and AlShakhori (2025), Batsurovska and Lymar (2024), Chen (2025), Hwang and Zhang (2024), Le et al. (2023), Kim et al. (2024), Peltola et al. (2025), Elov et al. (2025), Nami (2023c), Zhou and Divekar (2025)

The analysis of the data in Table 2 confirms that the use of interactive methods in foreign language teaching has significant didactic advantages related to improving the efficiency of learning, forming professional language competence and developing soft skills. At the same time, the successful implementation of such methods requires taking into account a number of limitations related to resource provision, digital training of students and teachers, and sound pedagogical design of the interactive learning environment.

Interactive digital technologies are becoming the basis for the transformation of traditional approaches to teaching foreign languages in higher education. Their effectiveness is confirmed by numerous studies that document improved language results, increased motivation, and reduced language anxiety. Particularly effective are technologies such as simulation and role-playing games that allow for closer learning to real-life situations; chatbots that allow for dialogic speech practice without the pressure of social evaluation; online platforms with adaptive content; and virtual and augmented reality that immerse learners in the language environment.

Table 3 systematizes interactive technologies that have shown their effectiveness in the process of foreign language training of higher education students.

Table 3. Interactive digital technologies effective for foreign language teaching in higher education

Technology	Brief description	Didactic advantages
Simulation and role-playing games	Modeling situations of professional communication with the distribution of roles	Formation of speech strategies, reduction of anxiety
Online platforms (LMS)	Moodle, Edmodo, Google Classroom, combining content, communication and assessment	Student-centered, personalized, progress monitoring
Chatbots and AI agents	AI-based services that support dialogic learning (ChatGPT, etc.)	Continuous language practice, instant feedback, development of autonomy
Virtual reality (VR)	VR environments that simulate authentic socio-cultural situations	Deep immersion, development of intercultural competence
Intelligent tests (ICALA)	Automated tests with adaptive questions and feedback	Assessment without stress, development of self-control, increase of language confidence

Source: created by the author based on Al-Hoorie and AlShakhori (2025), Batsurovska and Lymar (2024), Chen (2025), Elov et al. (2025), Hayes et al. (2021), Peltola et al. (2025), Reddy and Lakshmi (2024), Shabur et al. (2025), Zhou and Divekar (2025)

The effectiveness of these technologies is confirmed not only by the practical results of their implementation in the educational process, but also by empirical studies in different national contexts. They contribute to the formation of not only linguistic, but also professional, digital and intercultural competence that meets the modern requirements for specialists in a globalized world. Interactive technologies are becoming a tool for integrating language, content, and environment into one holistic learning experience.

Authors conducted a pedagogical observation that took place during one semester in the academic year 2024/2025 at the Academy of Labor, Social Relations and Tourism (Kyiv) and Cherkasy State Business College (Cherkasy). The study involved 42 second-year students majoring in "Vocational Education. Digital Technologies" and "Vocational Education. Economics". The purpose of the observation was to study changes in the level of foreign language communicative competence after the targeted introduction of interactive technologies: educational chatbots (based on ChatGPT), simulation role-playing games (including elements of gamification), virtual VR modules for modeling professional situations (free Mozilla Hubs scripts were used), as well as educational online platforms (Moodle, Google Classroom) with elements of formative assessment.

The assessment of the level of foreign language communicative competence of applicants was carried out on the basis of a comprehensive methodology outlined in Appendix A, which presents a set of practical tasks based on four key criteria: linguistic correctness (grammar and syntax), lexical diversity (thematically relevant vocabulary), ability to communicate in a dialogic professional manner (logicality, reactivity, style compliance) and orientation in typical professional situations (application of language structures in simulated circumstances). Each criterion was evaluated on a five-point scale, after which the arithmetic mean was calculated, which, in accordance with the principles detailed in Appendix B, allowed to classify the level of competence as high (4.5-5.0), sufficient (3.5-4.4), average (3.0-3.4) or low (less than 3.0). This approach ensured the objectivity and validity of the results, allowing us to track the dynamics of the development of each of the competence components.

The interactive technology implementation program, which is presented in detail in Appendix B, was implemented with due regard to the didactic principles of digitalization, student-centeredness, and competency-based approach. It included four main components: the use of chatbots (based on ChatGPT) for the development of autonomous dialogic speech; simulation and role-playing games with gamification for the development of communicative flexibility; Mozilla Hubs VR modules for immersion in a professional environment; and online platforms Moodle and Google Classroom with elements of formative assessment. All components were systematized by goals, implementation tools, expected results, participants, implementation timeframes, and monitoring methods, which allowed for comprehensive pedagogical support of the digital educational environment.

The impact of the interactive learning program on the level of foreign language communicative competence of students is illustrated in Figure 1.

After the implementation of the program, there was a significant increase in the proportion of students with a high level of competence (from 11.9% to 35.7%) and a moderate increase in the sufficient level (from 14.3% to 23.8%). At the same time, there was a decrease in the share of participants with an average level (from 38.1% to 31%) and a particularly noticeable decrease in the low level (from 35.7% to 9.5%). Thus, the results demonstrate the effectiveness of integrated digital tools in improving the quality of foreign language training. The positive dynamics is especially pronounced in the transition of students from low to high proficiency levels.

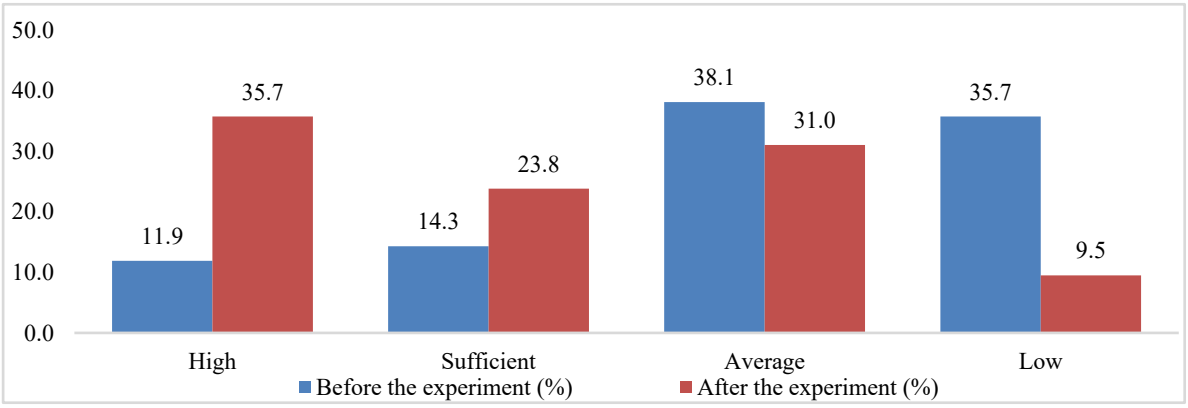

Figure1. Dynamics of foreign language communicative competence levels before and after the experiment (%)

Source: developed by the author

The results of the experimental study confirmed the effectiveness of introducing interactive technologies into the process of foreign language training of higher education students. The use of educational chatbots, simulation and role-playing games with elements of gamification, VR modules for modeling professional situations, and online educational platforms with formative assessment provided holistic digital support for the learning process. The results showed positive dynamics in the formation of foreign language communicative competence: a significant increase in the proportion of students with high and sufficient levels was accompanied by a decrease in the proportion of those with intermediate and low levels. This proves that interactive technologies contribute to increased motivation, active involvement of students in learning, development of professionally oriented speech activity and formation of self-reflection skills. The implemented model can be recommended for scaling up within the framework of educational programs of professional foreign language training.

5. Discussion

The study has confirmed the hypothesis of the effectiveness of interactive technologies in the formation of foreign language communicative competence of higher education students. The obtained results demonstrated a significant increase in the proportion of students with a high level of competence after the introduction of interactive tools, including chatbots, VR scenarios and role-playing games. This is in line with the findings of researchers such as Hwang and Zhang (2024), Elov et al. (2025), and Chen (2025), who also documented an increase in language autonomy, reduced anxiety, and improved academic performance with digital learning support. At the same time, unlike some studies that focus primarily on cognitive aspects (Kaiqi & Kutuk, 2024), our study allows us to emphasize the comprehensive development of not only linguistic but also communicative and social components of competence.

However, some authors express a more reserved position on the benefits of interactive technologies. For example, Nami (2023b) and Estaji (2024) emphasize the problems of the quality of digital materials and the limitations of digital teacher training, which can reduce the effectiveness of the introduction of new formats. In our case, these risks were partially mitigated by targeted selection of platforms and integration of pedagogical strategies into the digital environment. In addition, although Li (2024) points out the caution of teachers in adopting new formats, the experience of our educational institutions shows a positive perception and readiness for change, which is likely due to the context of professionally oriented educational programs. It is also interesting to compare with the results of Shabur et al. (2025), who emphasize the success of using Education 4.0 in technical education. Instead, in our study, interactive technologies were implemented in the humanities educational context, which demonstrates their versatility and adaptability. A common feature is the increase in students' intrinsic motivation, which is considered a critical condition for effective learning according to Kim et al. (2024) and Batsurovska and Lymar (2024). At the same time, some studies (e.g., Lo, 2023) point to the fragmentation of digital technologies in higher education institutions and the lack of methodological support, which confirms the need for a systematic approach to the digitalization of foreign language teaching.

Interpreting the results, authors can assume that the combination of active methods (role-playing games, simulations), AI-based tools, and virtual environments creates conditions for personally oriented and experiential learning, which is especially effective in training future professionals. Such learning not only builds language skills but also develops soft skills. At the same time, certain limitations recorded in our study (in particular, different levels of students' digital literacy, technical support) are consistent with the criticisms of Huang (2024) and Fornasiero and Tolio (2024). Thus, the generalization of the results suggests that interactive technologies do have a positive impact on foreign language teaching in higher education, but the effectiveness of their use depends on a number of factors, from the professional training of teachers to the availability of technical infrastructure. Further research should focus on developing typical models of digital and pedagogical support for interactive learning and empirically testing the sustainability of the skills developed in the long term.

6. Conclusions

The results of the study revealed that the integration of interactive digital technologies into the process of foreign language training of higher education students not only increases the level of language competence, but also changes the very logic of learning, developing students' flexibility of thinking, ability to make independent decisions and intercultural adaptability. The expected effect – an increase in the proportion of students with a high and sufficient level of foreign language proficiency – was achieved even in the short term, which indicates the practical effectiveness of the applied model. The novelty of the study lies in an integrated approach to the introduction of chatbots, VR scenarios and role-playing games in a blended educational format, as well as in the detailed monitoring of their impact on specific components of foreign language communicative competence. The main limitations include the heterogeneity of digital training of participants, technical inequality between educational institutions, and the need for methodological support from the teacher. At the same time, the implemented model proved to be universal; it can be adapted to different professional contexts, which opens up wide opportunities for interdisciplinary application. Promising areas for further research include the development of tools for long-term monitoring of the impact of digital interactive learning, the formation of sustainable strategies for language reflection, and the study of the interaction of cognitive, emotional, and technological factors in the formation of foreign language competence. In addition, it

is advisable to create digital ecosystems to support interactive learning at the institutional level, which will ensure the sustainability of changes in the content of language education.

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Authors contributions

Buzdugan and Mulyk drafted the manuscript and Dr. Irkhina revised it. Dr. Pakhomova and Holtseva were responsible for study design and revising. Buzdugan and Mulyk were responsible for data collection. Dr. Irkhina was responsible for analysis. All authors read and approved the final manuscript.

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The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Data sharing statement

No additional data are available.

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