

The effectiveness of virtual linguistic simulations in preparing for real communicative situations

A eficácia das simulações linguísticas virtuais na preparação para situações reais de comunicação

La eficacia de las simulaciones lingüísticas virtuales en la preparación para situaciones comunicativas reales

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Abstract: *The relevance of the study is determined by the need for new approaches to teaching foreign languages. This is important for filling the gap between learning and real-world situations. The aim of the research is to assess the effectiveness of virtual linguistic simulations in preparing students for authentic communication. The research employed the following methods: experimental training, surveys to assess student engagement and confidence, and testing of communication skills. The results showed a significant improvement in speech fluency and decreased anxiety. Students began to adapt better in spontaneous communication than during traditional training. The findings confirm that virtual simulations create an immersive learning environment. This contributes to the development of practical communication skills. The academic novelty of the study is the new approach to the integration of virtual simulations. The study expands the understanding of their role in language learning. Prospects for further research include studying the long-term impact of simulations. It is also important to assess the effectiveness for different languages and levels of training.*

Keywords: *Digital education. Foreign languages Innovative technologies. Real communication. Virtual simulations. VR technologies.*

Resumo: A relevância do estudo é determinada pela necessidade de novas abordagens para o ensino de línguas estrangeiras. Isto é importante para preencher a lacuna entre as situações de aprendizagem e do mundo real. O objetivo da pesquisa é avaliar a eficácia das simulações linguísticas virtuais na preparação dos alunos para uma

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comunicação autêntica. A pesquisa empregou os seguintes métodos: treinamento experimental, pesquisas para avaliar o engajamento e a confiança dos alunos e testes de habilidades de comunicação. Os resultados mostraram uma melhora significativa na fluência da fala e diminuição da ansiedade. Os alunos começaram a se adaptar melhor na comunicação espontânea do que durante o treinamento tradicional. Os resultados confirmam que as simulações virtuais criam um ambiente de aprendizagem imersivo. Isso contribui para o desenvolvimento de habilidades práticas de comunicação. A novidade acadêmica do estudo é a nova abordagem para a integração de simulações virtuais. O estudo amplia a compreensão do seu papel na aprendizagem de línguas. As perspectivas para futuras pesquisas incluem o estudo do impacto a longo prazo das simulações. É também importante avaliar a eficácia para diferentes línguas e níveis de formação.

Palavras-chave: Comunicação real. Línguas estrangeiras. Educação digital. Simulações virtuais. Tecnologias inovadoras. Tecnologias de RV.

Resumen: La relevancia del estudio viene determinada por la necesidad de nuevos enfoques en la enseñanza de lenguas extranjeras. Esto es importante para colmar la brecha entre el aprendizaje y las situaciones del mundo real. El objetivo de la investigación es evaluar la eficacia de las simulaciones lingüísticas virtuales para preparar a los estudiantes para una comunicación auténtica. La investigación empleó los siguientes métodos: formación experimental, encuestas para evaluar el compromiso y la confianza de los estudiantes y pruebas de las habilidades de comunicación. Los resultados mostraron una mejora significativa en la fluidez del habla y disminución de la ansiedad. Los alumnos comenzaron a adaptarse mejor en la comunicación espontánea que durante la formación tradicional. Los resultados confirman que las simulaciones virtuales crean un entorno de aprendizaje inmersivo. Esto contribuye al desarrollo de habilidades comunicativas prácticas. La novedad académica del estudio es el nuevo enfoque de la integración de las simulaciones virtuales. El estudio amplía la comprensión de su papel en el aprendizaje de idiomas. Las perspectivas de investigación futura incluyen el estudio del impacto a largo plazo de las simulaciones. También es importante evaluar la eficacia de los diferentes idiomas y niveles de formación.

Palabras clave: Comunicación real. Idiomas extranjeros. Educación digital. Simulaciones virtuales. Tecnologías innovadoras. Tecnologías de realidad virtual.

1 INTRODUÇÃO

The latest educational technologies are actively integrated into the educational process, contributing to the creation of new approaches to the acquisition of knowledge by students and the development of their key competencies. The study of foreign languages deserves special attention in the context of globalization (Scholtz et al., 2021, p. 1408). As Osadchyi et al. (2021) note, the ability to communicate in different languages is critically important for ensuring successful intercultural communication. However, traditional teaching methods often prove to be insufficiently effective in creating conditions that correspond to real communication situations. This creates a need to develop innovative approaches that allow students to better adapt to communicative challenges.

One promising direction is the introduction of virtual linguistic simulations. Language sim-

ulations provide students with the opportunity to interact with virtual interlocutors and gain experience in simulated but realistic situations (Chernikova et al., 2021, p. 500). The use of VR in education allows for immersion in a foreign language environment, which significantly improves motivation to learn a language and develops adaptive communication skills (Agbo et al., 2023, p. 4). VR technologies enable the reproduction of realistic scenarios.

The introduction of such tools into the educational process poses the task for researchers to determine the effectiveness of these technologies for the development of foreign language sociocultural competence. The research hypothesis of the study is that the use of virtual simulations will significantly improve the level of students' readiness for real communicative situations.

So, the study of the impact of virtual linguistic simulations on students' readiness for real communicative situations is a relevant

and promising direction for improving modern methods of teaching foreign languages.

The aim of the study is to assess the impact of virtual linguistic simulations on the level of students' readiness for real communicative situations in the context of foreign language learning.

The aim was achieved through the fulfilment of the following empirical objectives:

- Analyse the dynamics of changes in the level of communicative competence of students before and after the virtual linguistic simulations.

- Determine which aspects of speaking skills are most improved through the use of VR technologies.

- Assess the effectiveness of using Mondly, HP Reveal, and EV Toolbox in the development of sociocultural foreign language competence based on student testing and questionnaire data.

2 LITERATURE REVIEW

The effectiveness of virtual linguistic simulations in preparing for real communicative situations is actively studied by researchers from various fields, in particular in the field of pedagogy and educational technologies. In their consistent review, Zahabi and Abdul Razak (2020, p. 730) draw attention to the importance of adapting virtual simulations to the students' individual needs. The authors emphasize that adaptability ensures higher learning efficiency, which is confirmed by the results of our study. ZENIOS (2020, p. 191) agrees with them, focusing on the integration of learning theory into technologically enhanced learning. These two works are complementary, as both emphasize the need to implement individualized approaches and take into account the students' cognitive characteristics. At the same time, the study by Zvarych et al. (2023, p. 1916) assesses the effectiveness of simulations for learning foreign languages, which shows positive results in improving students' communicative skills. Similar findings are supported by other authors, including Levin et al. (2023, p. 2), who are working on creating authentic

simulation scenarios in education, which is an important aspect for language training in real-world settings.

A study by Koukourikos et al. (2021, p. 16) on the use of simulations in medical education emphasizes the importance of creating realistic conditions that are as close to real-life situations as possible. The authors note that such an approach contributes to the development of students' practical skills. This is agreed by Hallinger and Wang (2020, p. 18), who point to the effectiveness of adaptive learning environments that allow taking into account the individual needs of students.

The review of literature that we used in studying the issue of the effectiveness of virtual linguistic simulations in preparing for real-life communicative situations in pedagogy focuses on the use of innovative technologies to develop language skills and improve students' communicative competence. In particular, as by Bulavina et al. (2024, p. 6750) noted, virtual simulations are an effective tool that enables creating conditionally real communicative situations where students can practice the language without having to be directly in the country of the native speaker or interact with real people. This issue has been actively explored in pedagogical research in recent years, which is confirmed by numerous studies.

One of the first important steps in this direction was the study by Castaño-Calle et al. (2022, p. 855), which focused on the perceived benefits of using virtual and augmented realities in language teaching. Their study examined how students studying to become teachers evaluate these technologies as a useful tool in the teaching and learning process. They indicated that virtual reality (VR) can significantly improve students' language practice by providing interactivity and personalization of learning, as well as allowing the reproduction of a variety of situations that are close to real ones.

Shkabarina et al. (2020, p. 138) emphasize the importance of developing pedagogical creativity of future teachers through innovative technologies, in particular virtual simulations. They prove that the integration of such tech-

nologies into the educational process not only improves language skills, but also stimulates a creative approach to solving educational problems. Levin et al. (2022, p. 374) agree with them, who emphasize the importance of simulation methods for developing creativity of primary school teachers, which contributes to the overall development of students' language competence. However, there are also studies that question the universality of this approach. For example, Ke et al. (2020, p. 2545) note that the use of technologies is not always effective, especially if teachers do not have the necessary skills to adapt such methods to the educational process. They believe that insufficient training of teachers in the use of innovative methods can limit the potential of such technologies in a real educational environment.

Yang et al. (2022, p. 411) investigate the use of online simulation games to reduce students' language anxiety, which is an important issue for effective foreign language learning. They note that simulations enable students to practice language skills in conditions close to real communicative situations, while minimizing the fear of language errors. This is also confirmed by Sailer et al. (2023, p. 1), who emphasize that anxiety is a serious obstacle to language learning, and simulations can significantly increase students' confidence in using the language. However, Bauer et al. (2022, p. 5) note that in order to achieve the maximum effect, it is important to take into account the individual characteristics of students, as not all of them may experience decreased anxiety in a simulation environment. They indicate that for some students, the use of virtual environments may cause additional psychological stress, which again leads to anxiety.

Studies by Bauer et al. (2022, p. 6), Ke et al. (2020, p. 2547), and Kuna (2023, p. 7153) emphasize the development of VR technologies in higher education programmes. They show that virtual simulations enable students to acquire practical skills in a safe environment, allowing them to work with real-world scenarios without risk to learning outcomes. This is an important aspect, as such technologies allow to eliminate physical barriers and limitations in-

herent in traditional learning. However, not all researchers agree with this. For example, Yang et al. (2022, p. 415) note that the effectiveness of VR simulations depends on the technological level of the students themselves, which can become a barrier to their widespread use, especially in resource-limited settings. These findings are supported by a study by Tasantab et al. (2022, p. 23), which concerns the improvement of practical skills using VR technologies in the training of health-care workers. Although the study has a medical context, its findings could also be applied to language training, as VR is also used to train professional language skills. They note that virtual simulations allow for the creation of realistic situations in which students can learn terminology and also practice communication skills in the conditions close to real life.

As Diachenko et al. (2022, p. 2) note, the prospects for implementing pedagogical innovations in higher education improve students' perception of educational material. Therefore, we believe that virtual linguistic simulations are extremely effective tools in teaching foreign languages. Studies show that they not only help to reduce students' anxiety, but also allow them to create conditions for practicing language skills in a safe and controlled environment. The integration of such technologies into the educational process helps students to improve their language competencies, in particular in realistic communicative situations that are close to real-life experience. All these facts emphasize the importance of using virtual simulations as one of the effective tools in the pedagogical process.

3 METHODS AND ORGANIZATION

3.1. RESEARCH DESIGN

The research design consisted of four main stages: summative assessment, preparatory, main, and final. The summative stage of the experiment provided for the use of a comprehensive methodology that included pedagogical observation and testing to diagnose the initial level of students'

preparation for real communicative situations.

We expanded the traditional methodology of teaching a foreign language to students in order to achieve the aim of our research. We used the capabilities of augmented reality (AR) technology to increase the effectiveness of learning. At the preparatory stage, a curriculum was developed that included the use of virtual linguistic simulations to form sociocultural foreign language competence. The participants were introduced to VR technologies and educational applications Mondly, HP Reveal (Aurasma), and EV Toolbox. The main stage lasted throughout the academic semester, where students in the experimental group (EG) performed interactive tasks in realistic communicative environments. The final stage involved testing and analysis of the results to assess the effectiveness of the proposed methodology. The experimental work was carried out as follows: traditional methods and means of teaching a foreign language were used in the control groups (CG). In the EGs, VR technology was used in addition to traditional methods.

The students in both groups studied common, socio-cultural, and professional vocabulary, read cultural and professional texts, and prepared their own projects in a foreign language. All students mastered the same amount of material and had the same number of classroom hours.

During traditional classes, the EG participants were offered to use an existing VR application for more effective development of sociocultural foreign language competence — Mondly. This application enables communication with a realistic interlocutor who responds with a human voice, changes clothes according to the topic of conversation, uses gestures and facial expressions to reproduce dialogues. The HP Reveal (Aurasma) and EV Toolbox applications were also used during classes in the EGs. These platforms enabled students to simulate real communicative situations and interact in virtual space. They trained communication skills, got acquainted with the cultural features of the language environment, and developed

professional foreign language competence, which contributed to preparation for real communicative situations.

Methodology description:

Pedagogical observation: this is a method that enables assessing the students' behavioural manifestations during educational sessions. We observed how students react to various communicative tasks, how they interact with each other, and how confidently they use a foreign language in simulated real-life situations. The following aspects were recorded during the observation: the level of student involvement, activity during language exercises, adequacy, and speed of reactions in response to communicative challenges.

Testing: we developed test items that simulated real-life communicative situations, for example, communication in a store, at a doctor's appointment or in the workplace. Testing was used to determine the initial and final level of students' readiness for real-life communicative situations. Standardized tests were used, which included tasks to test the understanding of spoken language, spontaneous response to questions, and knowledge of sociocultural vocabulary. The completed tasks were assessed according to determined criteria.

Statistical analysis. The method of comparing the mean scores before and after the experiment in the CG and EG was used to process the results. Statistical analysis was applied to substantiate the significance of the changes, using formulas to calculate the differences between the groups.

3.2. SAMPLE

The study was conducted among 74 senior students, who were divided into two equal groups of 37 people: EG and CG. Such a sample was chosen to ensure the representativeness of the results and the convenience of comparing the effects of different teaching methods. All participants were selected from students who studied English as a mandatory course, but belonged to different majors, for the purpose of assessing the universality of the proposed method. The selection of par-

ticipants was carried out randomly from the initial number of 150 students. The students had to speak the language at levels B1–B2 according to the Common European Framework of Reference for Languages (CEFR). The participants had to have some previous experience in using digital technologies in the educational process, which was important for the successful development of the simulation method of

teaching. All students agreed to participate in the study on a voluntary basis.

The students were selected from different gender and age categories for the purpose of a more diverse and balanced representation. The participants were selected randomly, taking into account clearly defined criteria that ensured the representativeness of the sample for the study (Table 1).

Table 1 – Sample characteristics

Criterion	Description
Number of participants	74 students
Level of English proficiency	B1–B2 (according to CEFR)
Experience using digital technologies	Previous experience
Voluntary consent	All participants gave their voluntary consent to participate
Gender of participants	Male: 35 (47%), Female: 39 (53%)
Age of participants	18–22 years old (74%), 23–25 years old (26%)

Source: Developed by the authors (2025).

3.3. INSTRUMENTS

Mondly. This application was used to simulate dialogic speech. Students interacted with a virtual interlocutor who responded with a realistic human voice, used gestures, and changed clothing according to the topic of the conversation. This contributed to the development of spontaneous speaking skills and adaptation to different situations.

HP Reveal (Aurasma). It was used to create interactive presentations. Students developed “auras” that brought content to life, such as virtual tours or explanations of cultural features. This helped to develop public speaking skills and better learn the sociocultural aspects of the language.

EV Toolbox. The application simulates professional or everyday situations, such as business negotiations or team discussions. Using this tool helped to develop critical thinking and negotiation skills, particularly in a professional context.

Statistical formulas. The impact of the implemented programme in the EG was demonstrated by using the chi-square test to assess the statistical difference between the levels

of students’ preparation at the beginning and end of the experiment. The chi-square (χ^2) test is a common statistical approach for testing the relationship between two categorical variables in independent groups. It determines whether the frequency distributions between the groups are significantly different from the expected values. In our case, the goal was to compare the changes in the levels of students’ preparation in the CG and EG to test the effectiveness of the programme.

4 - RESULTS

A number of programmes created for virtual language simulations were analysed before the experiment. The analysis of the results of pedagogical observation and testing at the summative stage of the experiment revealed the peculiarities of the level of students’ preparation for real communicative situations in both the CG and EG. The following results were found for each group after conducting diagnostics of the initial level of preparation for real communicative situations.

Only 14 students in the CG (37.84%) demonstrated a high level. They had confident

communication skills, were able to respond quickly and clearly in dialogues using a wide vocabulary and appropriate grammatical constructions. These students confidently used a foreign language, had an extended vocabulary, used appropriate grammatical constructions and were well oriented in the context of the conversation. They responded quickly to questions, showed initiative in dialogues and easily adapted to changing communication conditions. The high level indicated effective learning of the language material, but included only a small proportion of students.

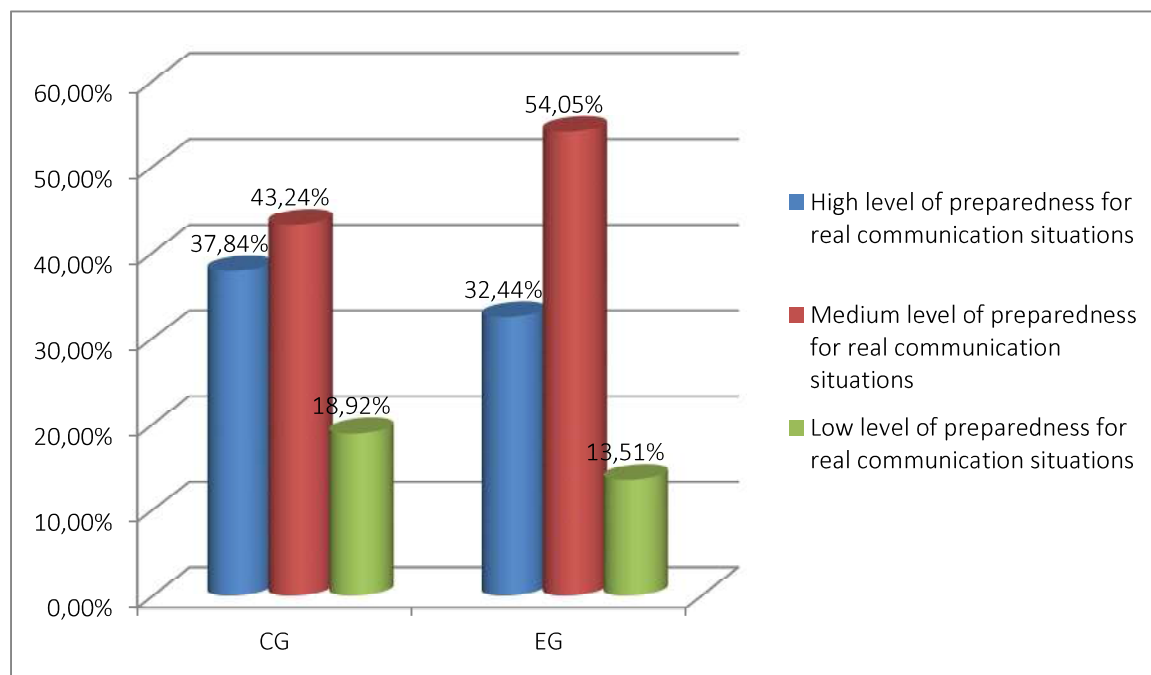
Most of the CG students, namely 16 students (43.24%), had a medium level of preparation. They demonstrated basic language skills and could communicate effectively in familiar situations, but needed more time to formulate answers. Their statements were somewhat limited in variability, and non-verbal means of communication did not always correspond to the content of the conversation. At the same time, students in this group showed a willingness to improve their skills. The medium level

showed the need for additional exercises to improve language skills, in particular interactive and communicative-oriented methods.

There were 7 CG students (18.92%) with a low level of preparation. They had significant difficulties in real-life communication situations, often used limited vocabulary, and made mistakes in grammatical structures. They had difficulty understanding instructions or expressing their thoughts, which made communication difficult and reduced their self-confidence. The low level emphasized the need for significant changes in teaching approaches to provide students with the necessary knowledge and confidence in real-life communication situations.

In the EG, 12 students (32.44%) had a high level. Another 20 students (54.05%) demonstrated a medium level of preparedness for real communicative situations. The rest 5 students, which respectively constituted 13.51% of the EG sample, had a low level of preparedness for real communicative situations (Figure 1).

Figure 1 – Peculiarities of preparedness for real communicative situations of the CG and EG at the summative stage of the experimente



Source: Developed by the authors (2025).

These peculiarities indicate the appropriateness of introducing new educational technologies aimed at developing students' communicative skills and enhancing their motivation to learn the language.

So, the CG students studied using traditional teaching methods, and their initial indicators were uneven, with a predominance of medium and low levels. The EG studied using virtual linguistic simulations, which, according to previous studies, should increase the level of their training.

The main stage of the experiment involves the targeted use of virtual linguistic simulations in teaching for the development of students' foreign language sociocultural competence. The implementation of technologies began with introducing students to the Mondly, HP Reveal, and EV Toolbox applications. The teacher demonstrated the functions of these tools, focusing on their potential to simulate realistic communicative situations.

In the first stage, students performed speaking exercises using the Mondly programme, interacting with a virtual interlocutor who responded with voice and used non-verbal means (gestures, facial expressions). This enabled them to adapt communication to different topics: business meetings, travel, etc. The main goal was to improve their understanding of spoken language and the ability to react quickly. The result was growing confidence in the use of vocabulary and correct pronunciation.

The students created interactive presentations in the HP Reveal programme, which enabled them to virtually visit cultural sites and reproduce tasks such as guide speeches or descriptions of monuments. This expanded cultural knowledge and improved public speaking skills, contributing to a deeper immersion in the cultural context of the language.

The EV Toolbox application enabled students to simulate professional and everyday communication situations: negotiations, service discussions, etc. The main tasks were to develop critical thinking and the ability to conduct dialogue. Thanks to this, students gained important skills for adaptation and effective

communication in different areas of life.

The final sessions included practical exercises, analysis of completed tasks, and group reflection. The teacher provided feedback, identified difficulties, and recommended ways for further improvement. The results showed that the integration of VR technologies significantly improves the quality of foreign language training, contributing to the development of students' intercultural competence and readiness for real communicative situations.

At the end of the experiment, the effectiveness of the development of students' foreign language competence based on the AR-based innovative educational platform was checked through observation, testing, questionnaire survey, and interviews. A survey of EG students was conducted to identify the advantages of using augmented reality applications in foreign language classes. Most participants noted that the performance and understanding of the material improved, foreign language competence developed faster, motivation enhanced, and involvement in the learning process and interest in the subject increased, and the level of communication between students increased. The methods of pedagogical observation and questionnaire surveys revealed that the clarity, information completeness and interactivity of AR-based applications develop imaginative thinking and spatial perception.

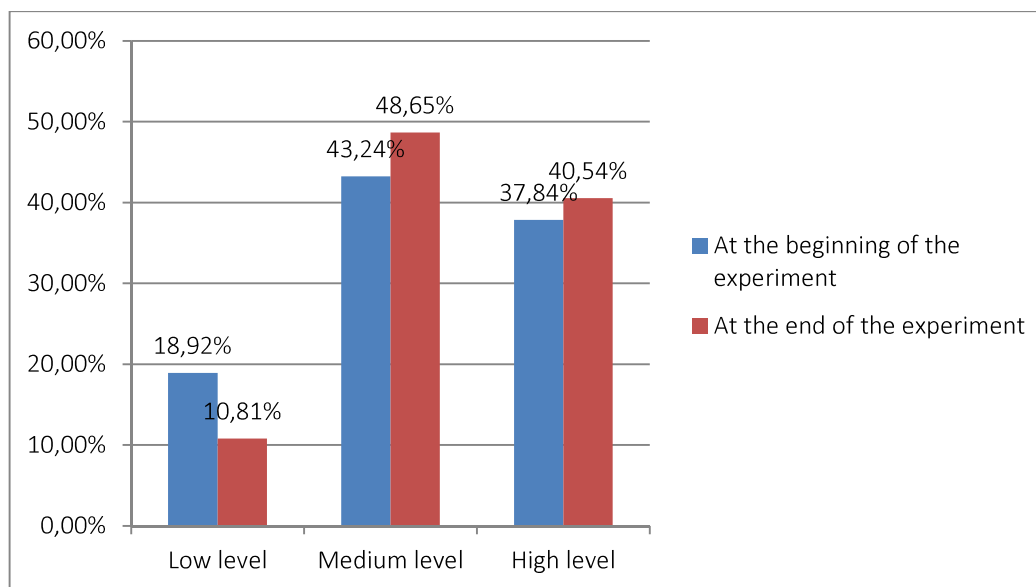
The level of foreign language competence at the end of the experiment was investigated using testing. The data obtained in the CG and EG were analysed and compared (Figure 2 and Figure 3).

The indicators of both groups were approximately the same at the beginning of the experiment, which confirms the even distribution of students by level of preparation. In the CG, 18.92% of students had a low level, 43.24% had a medium level, and 37.84% had a high level. In the EG, a low level was observed in 13.51% of students, a medium level — in 54.05%, and a high level — in 32.44%.

After traditional training, there were minor changes in the CG. The share of students with a low level decreased to 10.81%, the medium level increased to 48.65%, and the high level improved to 40.54%.

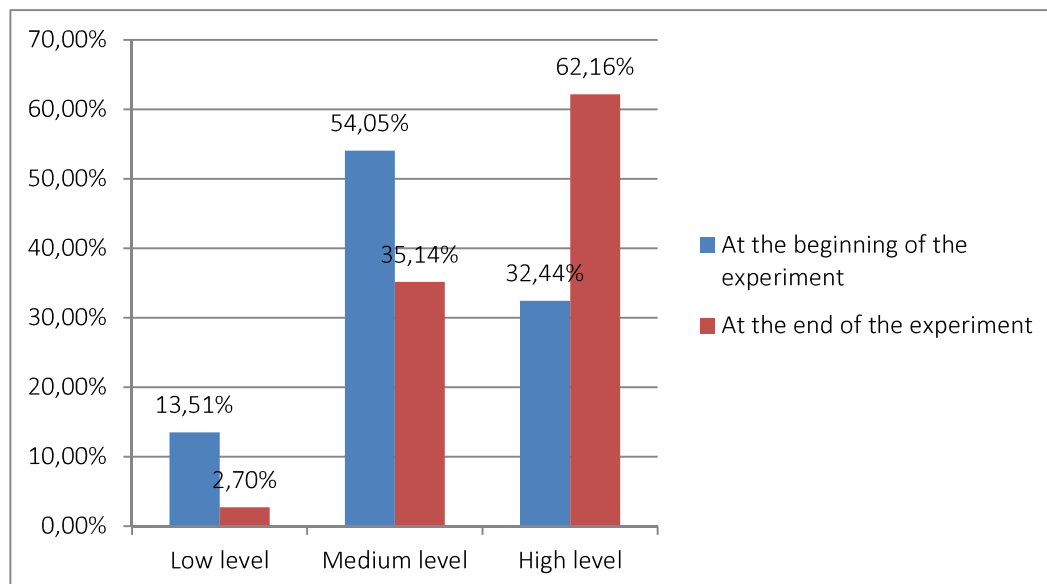
The results improved significantly thanks to the integration of VR technologies in the EG. The share of students with a low level fell to 2.70%, the medium level decreased to 35.14%, while the number of students with a high level of preparation increased to 62.16%.

Figure 2 – Comparison of the levels of preparedness of the CG for real communicative situations at the beginning and end of the experiment



Source: Developed by the authors (2025).

Figure 3 – Comparison of the levels of preparedness of the EG for real communicative situations at the beginning and end of the experiment



Source: Developed by the authors (2025).

The diagrams (Figure 2 and Figure 3) present a comparative analysis of the level of students' preparedness for real communicative situations for the CG and EG. The results show that both groups show an improvement in indicators after the experiment. However, in the EG, where virtual linguistic simulations were introduced, the proportion of students with a low level of preparedness significantly decreased and the proportion of students with a high level of preparedness significantly increased.

We checked the calculated χ^2 value using a table of critical values of chi-square. At a significance level of 0.05 (the standard level), we compared our χ^2 value with the critical value for the corresponding degree of freedom (df =

2). If $p < 0.05$, the differences are considered statistically significant. The chi-square (χ^2) value was 15.73, which is significantly higher than the critical value. The corresponding p value = 0.00038, which is less than 0.05, indicates a statistically significant difference between the levels of preparedness before and after the experiment in the EG.

The experiment showed that the implementation of the programme using virtual linguistic simulations significantly improved the level of students' preparedness for real communicative situations, which is confirmed by statistical analysis.

We also determined how EG students evaluate the use of the proposed programmes through the survey method (Table 2).

Table 2 – Students' assessment of the effectiveness of the implementation of virtual linguistic programmes and their key characteristics

Programme/Platform	Main function	Intended use	Effectiveness assessment
Mondly	Interactive foreign language learning through mobile applications and VR	Improve pronunciation, grammar and vocabulary	70% improvement in pronunciation and language comprehension
HP Reveal (Aurasma)	Using augmented reality for interactive learning	Learn and consolidate vocabulary, practice through AR	80% of students reported improved visual identification and memorization skills
EV Toolbox	Simulations and interactive tasks for developing language skills	Practice language scenarios, learn through game methods	75% of students reported increased effectiveness in using language in real-world situations

Source: Developed by the authors (2025).

Table 3 presents the features of changing skills during the experiment, which were identified by observation.

Table 3 – Changing skills during the experiment

Skill Category	Avg. score before experiment	Avg. score after experiment
Context understanding	3.5	4.2
Grammar	3.2	4.0
Pronunciation	2.8	3.9
Vocabulary	3.0	3.8
Reading comprehension	3.4	4.1
Listening skills	3.3	4.0
Communicative confidence	3.1	4.3

General language integration	3.6	4.4
Vocabulary	3.5	4.1

Source: Developed by the authors (2025).

So, the introduction of VR-based applications into the educational process significantly increased the effectiveness of the development of students' foreign language competence, which is confirmed by a significant increase in the number of students with a high level in the EG. This study experimentally confirmed that:

the use of VR technologies enriches visual and contextual learning of a foreign language; effectively complements traditional teaching methods and enhances students' interest in learning;

adds more educational information, enhancing students' motivation for a foreign language;

significantly enhances students' interest in learning.

5 DISCUSSION

Discussion of the research results shows that many of the previous studies are consistent with our conclusions on the effectiveness of using VR technology in education, but we also found some discrepancies that require detailed analysis.

The study by ABICH et al. (2021, p. 920) emphasizes the importance of VR for the development of psychomotor skills and spatial abilities, which is also a key finding of our study. However, unlike the authors, we note that the use of VR in educational simulations has an even wider range of effects. In particular, we note a noticeable effect on the development of cognitive skills, which was not emphasized in the work of ABICH et al. (2021). This confirms the importance of a comprehensive approach to integrating VR into educational processes. We have a different opinion regarding the conclusion about the limited effectiveness of VR in the development of social skills. Our results show that interactive VR simulations significantly improve students' social and communication skills, as they include situations

that require cooperation and communication between participants.

The study by Strojny and Dużmańska-Misiarczyk (2023, p. 3), which focuses on a general overview of the effectiveness of virtual training, provides a generalized picture that may not reflect the specific difficulties, such as cyber sickness and physical discomfort, that are addressed in our study. Given this, we further emphasize the importance of optimizing VR technologies to ensure long-term and comfortable use for educational purposes.

The Takimoto's (2020, p. 4) study, which focuses on the development of pragmatic skills through cognitive linguistics, also has some differences from our approach. Our study focuses on the integration of realistic scenarios for professional training, rather than the development of pragmatic language skills in the context of cognitive linguistics. However, given the impact of VR on learning processes, we can argue that we agree with Takimoto's conclusions about the importance of integrating theoretical approaches into practical training simulations, which allows for deeper study of various aspects of communication.

We confirm the findings of Devos et al. (2021, p. 5) and Michelson (2019, p. 285), which emphasize the role of simulations in the development of language and communication skills. Our results also demonstrate that role-playing and simulations based on real-life communication situations enhance students' interest and improve their language skills. Moreover, we agree with the idea that simulations need to be carefully designed to be as close to real-life conditions as possible.

The study by Duchatelet, Jossberger and Rausch (2022, p. 6) attaches significance to the evaluation and assessment of simulations, which is an important aspect also emphasized in our study. However, it is worth noting that we additionally emphasize the importance of technological improvements in VR systems to

reduce the risk of cyberbullying and improve the overall learning experience.

In the context of Hallinger and Wang's (2020, p. 17) work, we agree with their conclusion about the evolution of simulation-based learning across subjects. In our case, we see the need to adapt existing approaches to VR, taking into account the specific needs of learning language and acquiring communication skills.

Kaleta's (2020, p. 52) recent study in cognitive linguistics also supports the importance of integrating theoretical concepts into educational simulations. We also believe that this combination of theory and practice is essential for achieving high-performance educational simulations.

In line with the findings of Renganayagalu et al. (2021, p. 999), we agree with the need for high-quality content and optimization of technical aspects of VR to achieve effective results. Given the technological limitations, we also recommend optimizing the hardware for long sessions, which is critical for ensuring a comfortable learning experience.

Overall, our results confirm the importance of VR technologies for the development of language, cognitive, and social skills, however, we identified certain aspects that require additional attention, such as participant comfort during long sessions and the adaptation of educational simulations to specific learning contexts.

6 CONCLUSION

Virtual linguistic simulations showed a significant improvement in the level of language competence of students, in particular in the aspects of understanding and using spoken English in real conditions. Students who participated in virtual simulations demonstrated high results in testing. At the same time, thanks to the integration of VR technologies in EG, the results improved significantly. The share of students with a low level fell to 2.70%, the medium level decreased to 35.14%, while the number of students with a high level of preparedness increased to 62.16%. The use

of simulation contributed to the development of confidence in communicating in English, as well as the rapid learning of conversational structures. Virtual simulations reduced the level of stress during language practice, most students felt under-evaluated than during traditional learning. The research participants noted enhanced motivation to learn the language using interactive learning.

Virtual linguistic simulation technologies are highly accurate and energy-efficient tools that contribute to the achievement of specific pedagogical goals. They allow students to be actively involved in the development of foreign language competence and motivate them to learn. The use of these innovative educational platforms significantly increases the efficiency of learning a foreign language. This is especially important for generation Z, which got used to using modern information technologies. The results of this research can become the basis for further studies on the possibilities of virtual linguistic simulations in student education. Innovative technologies open up unlimited opportunities for learning new material.

The academic novelty of the study lies in substantiating the effectiveness of virtual linguistic simulations for the development of students' foreign language competence. The influence of interactive methods on the success of preparation for real communicative situations was empirically proven for the first time. The practical value of the study lies in creating conditions for a flexible and exciting learning process, which enhances the students' motivation and involvement. The results can be used to improve language teaching methods in higher education institutions.

The results of the study indicate the need for greater implementation of virtual simulations in curricula to improve practical language skills.

Simulations should be adapted to the level of students' language preparation, taking into account individual learning characteristics. The research was limited to a study group at one institution, which requires additional research to confirm the results on a larger sample.

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