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VIRTUAL REALITY IN LEARNING FOREIGN LANGUAGES

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Annotation. The «World Wander» project is an educational virtual reality (VR) game for learning English, developed in Unity engine. The article outlines the stages of creating 3D models, importing them into Unity, writing scripts, and testing. The project demonstrates the potential of VR in education, offering an interactive approach to learning. Prospects for further development are discussed, including improving graphics, integrating AI, and expanding functionality.

Keywords. Virtual reality, educational game, Unity, 3D modeling, interactive learning, English language, game development, testing.

Introduction. The necessity of interactive methods for learning foreign languages in today's world is more pronounced than ever. Games and role-plays capture learners' attention and keep them engaged. This active participation can lead to better motivation and a more enjoyable learning experience, as opposed to passive methods like lectures. This practical application helps learners use the language more fluently and confidently in real life. Modern interactive learning tools, such as language apps and online platforms, offer personalized learning experiences that can adapt to an individual's pace and learning style. This adaptability makes learning more efficient. The integration of technology through interactive methods, such as virtual reality (VR), online forums, and mobile applications, enhances access to diverse materials and resources, enriching the language-learning experience. Virtual reality (VR) is becoming increasingly popular, allowing users to immerse themselves in three-dimensional worlds and interact with them. VR is used not only for entertainment but also in education, medicine, architecture, and other fields. The goal of the project is to develop an educational game «World Wander» for learning English in VR.

Main part. Virtual reality is a three-dimensional computer-generated environment where users can interact with the virtual world through devices such as headsets and controllers. Key properties of VR include generativity, which means VR is created by external systems and does not exist in the real world; actuality, meaning VR exists only in real-time, with no past or future; autonomy, as VR has its own time, space, and rules of interaction; and interactivity, which allows users to fully immerse themselves and interact with the virtual environment. There are several types of VR, including full immersion, which requires specialized equipment and powerful PCs for realistic simulations; non-immersive reality, which includes high-quality 3D projections on large screens; shared infrastructure VR, which allows interaction with other users in virtual worlds, such as in Minecraft; and internet-based VR, which uses web technologies to create virtual spaces online.

For the development of the game, the Unity engine was chosen due to its accessibility, flexibility, and strong support for VR [1]. Blender software was used for 3D modeling, and C# was selected as the programming language [2]. During the development phase, a room with furniture and objects such as a desk, computer, and tape recorder was created. The models were designed in Blender and 3Ds Max. These models were then exported in FBX and OBJ formats, which support animations and textures, and imported into Unity. In Unity, textures were applied, and collision detection was added for object interaction.

The game is designed to provide an interactive and immersive environment where users can practice and improve their English language skills through engaging tasks and challenges. «World Wander» is an educational VR game that combines language learning with interactive gameplay. The game is set in a virtual environment where players can explore different locations, interact with objects, and complete tasks related to English vocabulary and grammar. The project aims to make language learning more engaging and effective by leveraging the immersive capabilities of

VR technology. Players can interact with virtual objects, solve puzzles, and complete challenges that require them to use their knowledge of English. For example, one of the tasks involves translating words displayed on a virtual computer screen, with points awarded for correct answers [3].

This game offers a detailed 3D virtual room (shown in Figure 1) with interactive elements like a computer and tape recorder, navigable using VR controllers to pick up and manipulate objects. Players complete tasks designed to test and enhance English skills, such as translating words on a screen, with progress tracked and points awarded. The SteamVR plugin enables natural character control and object interaction, aiming to improve vocabulary and understanding through engaging, real-world scenarios. Furthermore, the game's design allows for easy expansion with new levels, tasks, and features, including more complex language exercises and multiplayer options [4].

Figure 1 – Location images

The SteamVR plugin was used to create the character, enabling movement and interaction with objects. Functions such as movement, object pickup, and interactive tasks, like translating words on a computer, were implemented. Testing revealed a scoring error, which was subsequently fixed. All functional requirements were met, and the game runs smoothly with correctly functioning locations and objects [5].

The project has significant potential for further development. Improvements could include introducing more complex and interactive scenarios for learning, such as virtual conversations with AI characters or role-playing situations. Adding technologies that allow players to use voice commands or gestures to interact with the virtual environment would make the experience more natural. Implementing multiplayer features that allow students to learn and practice English together in a virtual classroom or social setting could enhance the social aspect of learning. Adapting the game for mobile VR platforms would make it accessible to a wider audience. Using AI to analyze player progress and provide personalized feedback and recommendations for improvement could make the learning process more effective. Finally, adding new levels, tasks, and vocabulary sets would keep the game engaging and challenging for players of all skill levels.

Conclusion. Interactive methods are essential for modern foreign language learning due to the need for engagement, practical application, better communication, and adaptability in an interconnected world. The successful «World Wander» project exemplifies this by using VR to create an immersive and engaging language learning platform. Built with references like Unity Documentation and Geek Brains, and including code for interaction and scoring, the project features high-quality 3D models and scripts to deliver an interactive educational environment that meets technical standards and will be further refined for an improved user experience.

References

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