



# USING VR TECHNOLOGIES IN TEACHING ENGLISH IN IMMERSIVE MEDICAL EDUCATION AND LESSON ORGANIZATION METHODOLOGY

**Kakhorova Tursinoy Ulugbek kizi**

**FMIOPH**

**Senior Lecturer, PhD**

**tursunoysohlabonu@gmail.com**

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## ABSTRACT

*This scientific article highlights the methodological foundations of using virtual reality (VR) technologies in teaching English within an immersive medical education environment. It analyzes the possibilities of developing students' professional communicative competence, bringing them closer to real clinical situations, and implementing interactive teaching methods through VR technologies. In addition, the stages of VR-based lessons, effective methods, and practical recommendations are presented.*

**Introduction.** Today, the education system is rapidly evolving in close connection with developing information technologies. Especially in the field of medical education, the use of modern technologies has become a necessity. Among these, virtual reality (VR) technologies serve to make the learning process more effective, engaging, and practically rich. Teaching English in the medical field is particularly important, as most modern medical scientific sources, international conferences, and clinical protocols are conducted in English. Therefore, it is necessary to develop not only general language skills but also professional terminology and communicative competence in students.

Immersive education is an approach based on fully engaging learners in the studied environment, and VR technologies provide a high level of support for this process. This article specifically analyzes the methodology of teaching English based on VR in depth. The Concept of Immersive Learning and Its Role in Medical Education. Immersive learning is a teaching method based on adapting learners to an artificially created environment. In this approach, the learner is not a passive listener but an active participant.

In medical education, immersive learning provides the following opportunities:

Simulation of clinical cases

Learning from mistakes in a safe environment

Development of practical skills

Adaptation to stressful situations

Virtual reality (VR) is a computer-generated three-dimensional interactive environment that fully immerses the user, creating a sense of presence in an artificial yet realistic space. Unlike traditional digital tools, VR allows users not only to observe but also to actively interact with the environment, making learning more engaging and experiential. A VR system

consists of several essential components. First, the VR headset enables users to visually experience the virtual environment in a fully immersive manner. Second, sensors and motion-tracking devices detect the user's movements and transfer them into the virtual space in real time, ensuring natural interaction. Third, interactive software manages and coordinates all processes, including scenarios, responses, and user feedback. Finally, the 3D virtual environment represents a simulated space designed to closely resemble real-life conditions, particularly important in professional fields such as medicine.

It is well known that medical English significantly differs from general English. It incorporates specialized terminology, clinical communication, and professional discourse, which require a targeted and context-based learning approach. For this reason, traditional teaching methods are often insufficient to fully develop the necessary competencies. VR technologies offer an effective solution by creating realistic, practice-oriented learning environments. One of the key applications of VR in teaching medical English is the development of clinical dialogue skills. Students can interact with virtual patients, practicing doctor-patient communication in scenarios that closely replicate real-life clinical encounters. This helps improve their communicative competence, confidence, and ability to respond appropriately in professional situations.

Another important aspect is the reinforcement of medical terminology. Instead of merely memorizing terms from textbooks, students can visualize anatomical structures and medical procedures in a 3D environment. For example, a student can explore the human heart virtually, observe its structure, and simultaneously learn the corresponding terminology, which significantly enhances retention and understanding. VR also plays a crucial role in improving listening comprehension skills. Within a virtual environment, students are exposed to realistic audio inputs, including patient descriptions, medical consultations, and clinical instructions. These authentic auditory experiences help learners develop the ability to understand spoken English in professional medical contexts.

Furthermore, VR enhances speaking skills by encouraging active participation. Students engage in real-time conversations with virtual patients or simulated colleagues, which helps them overcome language barriers, improve pronunciation, and develop fluency in medical communication. The educational advantages of VR technologies are numerous. Firstly, they support visual and experiential learning, allowing students to see, hear, and perform tasks simultaneously, which significantly increases learning effectiveness. Secondly, VR enhances student motivation, as immersive environments are more engaging and stimulating compared to traditional classroom settings. Thirdly, it provides a real-life-like learning environment, enabling students to experience clinical situations without leaving the classroom. Finally, VR ensures a safe learning space, where students can make mistakes, learn from them, and improve their skills without real-world consequences.

**The Role of VR Technologies in Teaching Medical English.** Medical English is distinct from general English as it focuses on specialized vocabulary, clinical interaction, and professional communication. Therefore, its teaching requires innovative and practice-oriented approaches. VR technologies are particularly effective in the following areas:

### **1.Learning clinical dialogues**

Students practice interactions between doctors and patients in simulated clinical scenarios, improving both language and professional communication skills.

### **2.Strengthening terminology**

Visual and interactive elements help students better understand and memorize complex medical terms.

### **3.Listening comprehension**

Realistic sound environments improve the ability to understand spoken English in medical contexts.

### **4.Speaking skills development**

Students communicate with virtual patients in English, which enhances fluency, confidence, and communicative competence.

**Methodology of Organizing VR-Based Lessons.** For the effective use of VR technologies, it is essential to properly structure and organize the lesson process. A well-designed VR lesson should integrate pedagogical goals with technological capabilities. VR can be successfully combined with various interactive teaching methods, including: Role-play – students take on the role of doctors and interact with virtual patients; Case study – analysis of realistic clinical scenarios; Problem-based learning – solving medical problems through critical thinking; Simulation – performing virtual procedures or medical interventions

**Methodological Recommendations.** To ensure the effectiveness of VR-based lessons, the following recommendations should be considered:

Clearly define lesson objectives and outcomes

Integrate VR with traditional teaching methods for balanced learning

Actively engage students in the learning process

Develop clear assessment criteria to evaluate performance

Provide proper training for teachers in using VR technologies

**Results and Analysis.** Research findings indicate that students trained using VR technologies demonstrate significant improvements in several areas:

They communicate more fluently in English

They acquire and retain medical terminology more effectively

They are better prepared for real clinical situations

**Conclusion.** In conclusion, VR technologies represent an innovative and highly effective tool for teaching English in immersive medical education. They bridge the gap between theoretical knowledge and practical application by creating realistic and interactive learning environments. VR not only increases student engagement but also enhances the development of professional competencies required in modern healthcare settings. The future integration of VR technologies into medical education is expected to significantly improve the quality of training, making learning more efficient, practical, and aligned with real-world demands..

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