

Innovative Use of Virtual Reality for Physiotherapy Training and Rehabilitation

Country	Romania
Institution/Organisation	"Grigore T. Popa" University of Medicine and Pharmacy, Iași, Romania
Type of setting	Research and education institution focusing on innovative healthcare solutions
National Context	Physiotherapy education faces challenges in providing students with sufficient hands-on clinical practice and innovative methodologies that align with digital health trends.

In many European countries, including Romania, healthcare institutions are increasingly open to digital and technological solutions, yet VR-based rehabilitation tools remain underutilized in physiotherapy training and practice. By introducing VR technology into the curriculum, this project bridges the gap between theoretical knowledge and clinical application, preparing future physiotherapists to adopt modern approaches that enhance patient engagement and outcomes.

Description of Technology or System

The system combines traditional physiotherapy education and practice with immersive VR-based tools. It integrates the Oculus Quest 2 headset into physiotherapy training, allowing students to practice rehabilitation program design and patient exercise execution in both real-life and simulated environments. The hybrid approach ensures that students not only acquire digital competencies but also reinforce essential face-to-face skills such as communication, observation, and manual assistance.

Implementation Process

- Needs Analysis and Technology Selection
- Curriculum Integration – designing modules for physiotherapy students that blend VR training with traditional teaching and clinical placements..
- Staff Training, Pilot Testing and implementing the system across the physiotherapy bachelor program in rehabilitation sessions.

Impact and Results

- Quantitative: 15–25% improvement in adherence to rehabilitation exercises compared to traditional methods.
- Qualitative: Positive feedback from students regarding the realism, interactivity, and engagement of VR training. Patients reported higher motivation and enjoyment compared to standard rehabilitation exercises.

Success Factors

- Blending VR with traditional teaching improved student engagement.
- Students applied digital tools directly in patient care, linking theory to practice.
- Strong collaboration between educators, students and patients.

Challenges and Barriers

- Technical Issues: Initial difficulties with VR setup, calibration, and connectivity.
- Some educators were hesitant about adopting new methods.
- Certain patient groups required adaptation of VR content.

Key Lessons Learned

- Start Small, Scale Gradually: Piloting the technology first allowed adjustments before full implementation.
- Hybrid Approach Works Best: VR is most effective when combined with traditional physiotherapy, not as a replacement.