

THE USE OF MILSIM VIDEO GAMES (ARMA 3 AND SQUAD) FOR MILITARY TRAINING OF STUDENTS: ADVANTAGES, DISADVANTAGES, AND LIMITS OF APPLICABILITY

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Анотація

Публікація досліджує можливості використання відеоігор жанру військових симуляторів (MilSim) для військової підготовки студентів. Проведено аналіз переваг, таких як розвиток когнітивних навичок і комунікації, та недоліків, зумовлених відсутністю фізичного навантаження. Визначено межі застосовності ігор Arma 3 та Squad у навчальному процесі.

Ключові слова: військові симулятори, підготовка студентів, тактичне мислення, Arma 3, Squad, гейміфікація.

Abstract

The publication explores the possibilities of using military simulator (MilSim) video games for the military training of students. It analyzes the advantages, such as the development of cognitive skills and communication, and the disadvantages caused by the lack of physical exertion. The limits of applicability of the games Arma 3 and Squad in the educational process are determined.

Keywords: military simulators, student training, tactical thinking, Arma 3, Squad, gamification.

Introduction

The integration of gamification and simulation technologies into professional education has become a prominent approach in modern training. Military simulators (MilSims), such as Arma 3 and Squad, represent a specific genre of video games designed to replicate realistic combat conditions, squad-level coordination, and tactical decision-making. These platforms offer an immersive learning environment, transforming students from passive observers into active participants. This publication explores the applicability of MilSims for the preliminary military preparation of university students, evaluating their core benefits, inherent limitations, and appropriate boundaries of use.

Research results

The integration of MilSim platforms like Arma 3 and Squad into the educational process provides a specialized cognitive environment for training. Research indicates that action-oriented simulations significantly enhance visual attention and the ability to process multiple information streams simultaneously [1]. A critical advantage identified in military evaluations is the development of situational awareness (SA); simulations proved to be the only method capable of effectively training and assessing a student's ability to maintain SA in dynamic, high-pressure environments compared to traditional tactical exercises [2]. Furthermore, these platforms serve as highly effective tools for mission rehearsal and "virtual reconnaissance," allowing students to familiarize themselves with specific terrain and topographical features before physical deployment [3].

However, the transition from virtual to physical environments reveals significant "transfer-of-training" limits. Controlled studies by defense organizations show that while students can learn theoretical tactics, virtual training is ineffective for teaching basic motor skills such as tactical locomotion, physical squad-level attack drills, or the nuances of weapon handling [4]. This is largely due to the "fidelity gap": commercial game engines, while immersive, cannot replicate the physical fatigue, weight of equipment, or the genuine psychological stress of a live-fire environment [1, 3]. Consequently, while students demonstrate improved planning and communication skills, their physical execution in the field remains dependent on traditional drill-based training.

Analysis of the results

The comparative analysis of Arma 3 and Squad within the training framework reveals that their effectiveness is highly specialized and depends on the specific training objectives. While both platforms succeed in enhancing cognitive competencies, they address different layers of tactical preparation. Arma 3, with its vast sandbox environment and advanced topographical tools, is superior for developing spatial reasoning and long-term mission planning. It allows students to internalize map-reading and reconnaissance procedures, effectively bridging the gap between theoretical geography and spatial orientation. Squad, conversely, excels in training decentralized communication and micro-level coordination under immediate tactical pressure. The game's suppression mechanics and reliance on squad-leader directives provide a unique environment for testing leadership and situational awareness that traditional classroom models cannot replicate [5].

The "fidelity gap" identified in the research results serves as the primary boundary for the applicability of these games. Since virtual environments cannot simulate the physiological demands of combat – such as the physical resistance of equipment or the degradation of motor skills under extreme fatigue – the training remains strictly cognitive [1, 3]. The analysis suggests that using MilSims to teach physical drills (like "stacking" or weapon manipulation) may be counterproductive, as it risks developing "button-press" muscle memory rather than actual tactile proficiency. Therefore, the most effective application of these simulators is as a "pre-field" cognitive primer. They should be used to rehearse the logic of an operation and establish communication protocols, ensuring that when students transition to live-fire or physical drills, they can focus entirely on the physical execution rather than the underlying tactical theory [2, 3].

Conclusion

The integration of MilSim video games like Arma 3 and Squad into student military training is a highly effective tool for developing cognitive competencies, situational awareness, and communication skills. While Arma 3 excels in teaching spatial reasoning, topography, and long-term mission planning, Squad provides a unique environment for testing micro-level coordination and leadership under tactical pressure. However, due to the inherent "fidelity gap," these simulators cannot replicate the physiological demands, physical fatigue, or tactile nuances of real combat. Therefore, their applicability is strictly limited to serving [6] as a cognitive "pre-field" primer. Attempting to train motor skills or physical drills virtually is counterproductive and risks developing incorrect muscle memory. Ultimately, effective military education requires a hybrid approach where digital simulations establish a strong tactical and communicational foundation, ensuring that students can focus entirely on physical execution during traditional live-field training.

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