

THE IMPACT OF SIMULATOR VIDEO GAMES ON TECHNICAL LITERACY AND MILITARY UNDERSTANDING (A CASE STUDY OF WAR THUNDER AND DCS)

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Анотація

У тезах досліджується вплив військових симуляторів (War Thunder, DCS) на вивчення військової техніки, балістики та тактики. Розглянуто роль ігор у формуванні базових навичок OSINT, феномен витоку секретних даних гравцями, а також фундаментальні відмінності віртуального досвіду від реальних бойових дій.

Ключові слова: *військові симулятори, технічна грамотність, OSINT, витік військових даних, подвійне призначення (dual-use).*

Abstract

This paper examines the impact of military simulators (War Thunder, DCS) on the study of military equipment, ballistics and tactics. It explores the role of games in developing basic OSINT skills, the phenomenon of players leaking classified information, and the fundamental differences between virtual experiences and real combat operations.

Keywords: *military simulators, technical literacy, OSINT, military data leaks, dual-use.*

Introduction

Gamification has become a powerful tool for studying engineering and military hardware. Modern simulators have evolved into detailed interactive encyclopaedias, providing players with a comprehensive knowledge base regarding real-world combat vehicles. The visualization and structural modelling of the hardware allow for a thorough study of the internal layout of armoured vehicles or aircraft (engines, transmissions, crew positioning, and ammunition racks).

Furthermore, games cultivate recognition skills (a foundation for OSINT). Players learn to instantly identify military hardware and its modifications by silhouette, sound, or armour elements, which is a foundational skill in Open-Source Intelligence. Simulators also instil an understanding of complex physical and technological processes: ballistics, armour penetration (types of ammunition, armour impact angles), and the operational logic of aviation systems and Electronic Warfare (EW) (using DCS World as an example).

Research results

Interacting with vehicles in a gaming environment shapes tactical thinking and provides a clear understanding of combined arms tactics. Vulnerability analysis ("penetration zones") creates theoretical knowledge of where to most effectively direct real anti-tank weapons. The coordination of different military branches (Combined Arms) on a single map demonstrates the importance of interoperability. In hardcore communities, players even utilize real-world military radio communication protocols.

The phenomenon of engagement demonstrates a transition from ordinary gaming to expertise. Players immerse themselves so deeply in the study of military hardware that the line between gamers and specialized experts' blurs. Unprecedented proof of this is the regular occurrence of War Thunder players publishing actual classified military manuals on forums (e.g., for the Challenger 2, Leclerc tanks, or the F-16 fighter jet) to prove technical inaccuracies in the game's models to the developers.

Analysis of the results

Despite the high level of technical realism and applied utility (dual-use), it is crucial to recognize the critical boundary between simulation and real war. A fundamental limitation of the virtual experience is the absence of combat stress and somatic physics. No game can replicate physical G-forces, fatigue, the impact of weather conditions on the crew, and the psychological pressure of actual combat, where the cost of a mistake is life. Additionally, games offer an idealized environment largely lacking a full-fledged "fog of war," logistical issues with ammunition supply, or sudden equipment breakdowns due to part wear and tear.

Conclusion

Military simulators play a significant role in enhancing technical literacy and the understanding of combined arms principles among the civilian population. They serve as an effective tool for informal education; however, the acquired knowledge should be viewed exclusively as a theoretical foundation that cannot fully replace real combat experience due to the psychological and logistical limitations of the virtual environment.

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