

Chapter 58

The Use of Computer Games in Military Training by the British Army

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ABSTRACT

This chapter gives an overview of how serious computer games are being used for training, education, and decision support within the British Army and gives an in-depth example of the use of JCOVE training system used to train soldiers in convoy driving. Initial evaluations on the effectiveness of the use of serious games in preparing UK forces for operations in Iraq and Afghanistan show they have had a significant positive impact. Further research is needed on the business issue of better public procurement systems to introduce innovation in games faster into the training cycle and on the education aspects of using serious games as part of preparation to work in hazardous environments.

INTRODUCTION

The military has a long tradition of using games for military training and decision support (Dunnigan, 1979; Perla, 1990). The Baron von Reisswitz Kriegsspiel was the earliest wargame that achieved widespread use as a training tool (Curry, 2008). However, the initial Kriegsspiel

concept became too detailed for general training use and in 1876 the original use of detailed rules was superseded by an umpire controlled so-called Verdy 'free' Kriegsspiel (Curry, 2008). During the 20th century, wargames were an embedded part of military training and decision support: for example Germany used wargames to supporting planning for the invasion of France that was used in the First World War (Perla 1990), Russia used games to prepare for war with Germany (Fugate

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and Dvoretzky, 1997) and Britain used games for training staff in convoy procedures and tactics during World War II (Curry, 2011). The latter games were run by the Western Approaches Tactical Unit in Liverpool in Britain and they included games for training alongside games to develop new tactics in countering the German U-boat threat to merchant shipping.

The military use of computers for gaming started at the strategic level. The best known example was the ATLAS operational based research games used by the American Department of Defence between 1962 and 1980 (Wilson, 1970). The American wargame Tacspiel epitomized the problems with using wargames with extremely detailed rules derived from operational research for training. Each move in Tacspiel took two actual days to plan, execute and document a move that actually represented 15 minutes in real life (Allen 2009; Curry 2009). Whilst Tacspiel was invaluable in developing successful new doctrine for counter-insurgency, it was too slow to be an effective training tool.

The military around the world took to using computers to assist in military training (Michael and Chen, 2006). However, the cost of the hardware, the lead time for development and the lack of flexibility for each bespoke solution limited the availability of computers for military training. It was possible to build large simulators, to replicate the experience of flying an aircraft or driving a tank, but the military requirement to continually develop and modify the real combat systems meant that any simulators used had to be updated at the same time to maintain their training value. It was the arrival of the widespread use of personal computers, coupled with the application of commercial off the shelf software from commercial games that have made military training games on computer potentially readily available as a cost-effective training solution (Michael and Chen, 2006).

A recent defence report by Visiongain in 2010 (an independent business information provider

for the Telecoms, Pharmaceutical, Defence, Energy and Metals industries) analysed the rapidly growing military simulation and virtual training market, exploring in detail its potential from 2010-2020. Armed forces worldwide are rapidly embracing military simulation and virtual training as a critical tool for enhancing training capacity, increasing training capability and in the process reducing training costs compared to 'live' training. Based on this research, global spending in 2009 on military simulation and virtual training reached \$8.4bn.

This chapter examines the current trends in using computer based training games as an integrated part of the military curriculum by examining a detailed example from the British Defence Academy.

BACKGROUND

The British military view of the relationship between training, education and wargaming is to identify each as distinct functions. Training involves teaching individuals to undertake set tasks, for example teaching a soldier to fire a rifle or a driver to drive a main battle tank. Education is seen as teaching service men to apply this training to solve tactical problems, such as getting a number of soldiers who know how to fire the assault rifles to successfully work as a team to storm a building. The UK Defence Academy teaches officers to solve tactical problems from the tactical to the operational and strategic levels. Wargaming is seen in terms of decision support, for example evaluating different courses of action to identify the one with the lowest level of risk.

Military Training systems can be divided into three:

- Live simulations, with real troops, real equipment, and on real terrain but the weapons have simulated effects.

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