

A study on the military Serious Game

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Abstract. This study aims to examine the military serious game, a kind of serious games and its accurate classification, to suggest application and development direction by means of serious games and to develop studies on various effects of the military serious game.

Keywords: Serious game, Military, War game, Modeling & Simulation

1 Introduction

Serious game is a genre of games but it is not simply for entertainment. Serious game is a simulation to see and feel games but it also simulates actual events of the world and process. While it gives fun experiences to users, it aims to train or educate players in general [1].

Areas utilizing serious games include education, psychology, health and treatment, PR and simulation[2]. The term 'Serious Game' was developed by Serious Game Initiative in 2002 in the USA with widespread research and development on Serious Game focusing on policy and management simulation.

Though there are diverse definitions of serious game, it is generally defined as "motivation (fun) and 'immersion' attracting voluntary participation' like a general feature of games. That is to say, it helps users to immerse contents with specific objectives joyfully and voluntarily by utilizing fun elements of a game[3].

In particular, serious game for military training is developed for virtual military training, which is also called war game with extensive application in army, air force and navy.

Serious game can be made possible by various cooperation and convergence of academy and industry in the design and development of games. For example, training simulation games used for the development of proficiency to achieve a special objective require cooperation with specialists of the relevant technology.

This study aims to examine military serious game, a genre of serious games in detail, to classify the present status of the military serious game clearly and to develop a plan and direction for the application of military training by means of serious games.

2 Classification of Military Serious Game

Serious game can be classified by objective and area. Objective is closely related to intention of achievement through a game by the developer and also to the result obtained through game play by the user. As the definition of serious game is a game developed to achieve a specific objective, the objective plays an important role in determining identity of serious game[4].

The major objectives of serious game include ‘training’, ‘education’, ‘PR’, and ‘experience’

Basically, serious game provides experiences to users through simulation.

Typical areas in which serious game is used are military, education, medical, public, business and learning.

Military serious game is known as a game used for military training purpose. It can be classified into three: information provision/PR, awareness/behavior transition and training.

It is shown in the below Table 1.

Table 1. Classification of Military Serious Game

Objective	Description
Training	It is a game developed for virtual military training such as military training, military hygiene training, basic military medicine, communication education and weaponry education applied extensively to army, air force and navy. It includes simulation game representing actual training situation and war game as a military simulation game. Recently, various training systems have been developed using VBS2.
Information provision/PR	It aims for military PR and military information delivery. America’s Army which was produced for recruitment of the US Forces is a representative example.
Awareness/behavior transition	It includes change of awareness on armed forces, promotion of recruitment and simulation training participation. America’s Army can be classified into this category.

Military training serious game is developed for virtual military training, which is extensively applied to army, air force and navy. It is widely used in an aviation simulation game that is too expensive to equip actual equipments for training and that is not appropriate in terms of environment[5].

2.1 Characteristics according to the classification of military serious game

Serious game of military training purpose. In the first place, as for serious game with an objective of training, there is a war game which is used as a simulation game. The reason for making military training simulator is to save time and cost. If actual training is carried out in the armed forces, it takes time to move to a training camp and equipments like tanks and combat aircrafts must be mobilized. However, training simulator can give prompt training in the military camp. In addition, as a similar is enough for training, it is cost effective compared with actual training. Therefore, training with a simulator is more effective in terms of cost and time.

Serious game of military promotional purposes. The representative example in this area is America's Army, a FPS game developed by the US Department of Defense. This game was released in 2002 with an intention to promote recruitment of the US Army. America's Army is a game in which a person is enlisted in the US Army and experiences strategic training and actual combat. As it is developed by the US Army, it is noteworthy that the description of situation and weaponry are very realistic[8].The US Army invested \$ 16 million for the development of America's Army and it was successful. They could recruit new army with only 15% investment of other recruit progra [6].The US Army is the most advanced leader in serious game. This game is not only the first game with a clear objective of recruitment but also a Militainment game combining military and entertainment[1].From the perspective of the Department of Defense, it is extremely beneficial to provide military training through a video game. It enables to improve coordination capacity between eyes and hands, and multitasking ability capacity, mission capability with minimal communication between teams, courage and audacity to take aggressive action in a risky situation [6].

3 Technical characteristics of the military serious game

Apart from serious game, military purpose IT technologies such as strategic simulation commonly called as 'war game' and simulator application for expensive and large scale equipment operation and proficiency training have been employed. [4]

The technical capacity of game in the military setting helps to take military simulation training with lower cost in terms of accuracy and immersion. The cost is lower than traditional military simulation trainings. The armed forces purchase necessary software and hardware and install them to develop a military game on their own[7].

The greatest advantage of the military serious game is that it enables people to have extensive experiences indirectly by virtual experiences of any possible situations. The technical characteristics of the military serious game can be summarized as in Table 2[4].

Table 2. Technical characteristics of the military serious game.

Characteristics	Description
Effective education & training	As for a survival game used for combat training of soldiers, it needs more reinforced survival game technology such as augmented reality, GPS(Global Positioning System) or RFID(Radio Frequency Identification) technologies, which can be used diversely.
Realization of low cost operation training simulation system	Simulation training widely used in the military setting can be restrictive as an expensive simulator is used. To compensate it, it is possible to use the military serious game which is manufactured in an affordable specification. It is operated in an online environment using a server and simulation training can be made possible by more participators simultaneously compared with an expensive simulator. It also enables to execute military strategy simulation that an expensive simulator cannot cover.
Awareness/behavior transition	It includes change of awareness on armed forces, promotion of recruitment and simulation training participation. America's Army can be classified into this category.

4 Conclusions and recommendations

The utilization of serious game in the military setting in Korea is still a beginning stage compared with the USA and other overseas countries. Accordingly, if systematic approach and long-term and in-depth studies are made, active performances are anticipated through the expansion to private and other various sectors beyond the military training serious game.

America's Army, developed by the US Army helped recruitment and contributed to develop loyalty, duty, respect, service, honor, self-esteem and courage. This study examined the military training serious game with special reference to classification of military training serious game and its technical characteristics. A suitable combination of elements between FPS genres and strategic simulation genre is required for the military training purpose.

The USA, a leading country of serious game has developed various serious games establishing a sort of industry. In accordance with prolific researches to develop and use serious games in each area have been carried out, it seems necessary to have joint projects between industry, academy and research institutes including universities, game development companies and public organizations.

Game is a media with powerful communicability and immersion beyond a simple entertainment. If researches on various effects of military training serious games by utilizing such positive function of games are implemented side by side, the development of serious game can be expected.

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