

Comparative analysis of first person shooter games on game modes and weapons-military-themed, overwatch, and player unknowns' battleground

Hae Kyung Rhee, Doo Heon Song, Jeong Hoon Kim

Department of Computer Games, Yong-In SongDam College, Yong-in 17145, Korea

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ABSTRACT

First-person shooter is a video game genre centered on gun and other weapon-based combat in a first-person perspective. It is the second most favored genre among young Korean male gamers. Recently, the resurrected old-school-shooter Overwatch and Battle Royale style Player Unknowns' Battleground enjoy a big success in Korean game market and worldwide meanwhile the military-themed games in the genre have shrunken especially in Korean market. In this paper, we take a comparative analysis on the game structures and game modes and particularly the weapon system used in the game to facilitate the player balancing in the team based combat. Two recent successful games in the genre showed different strengths over traditional military-themed first-person-shooter in this comparative study.

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Corresponding Author:

Doo Heon Song,

Department of Computer Games,

Yong-In SongDam College,

571-1 Cheo-in Gu, Yong-in 17145, Korea.

Email :dsong@ysc.ac.kr

1. INTRODUCTION

First-person shooter (FPS) is a video game genre centered on gun and other weapon-based combat in a first-person perspective; the player experiences the action through the eyes of the protagonist. FPS often focuses on action gameplay, with fast-paced and bloody firefights typically give players a choice of weapons, which have a large impact on how the player will approach the game [1]. So-called military-themed games in this genre have realistic models of actual weapons incorporating their rate of fire, magazine size, ammunition amount, and accuracy. Other FPS games may incorporate imaginative variations of weapons, utilizing a wide array of projectiles, from laser, energy, plasma, rocket and grenade launchers or crossbows. A recent survey showed that FPS was the second most favorite genre among Korean young male gamers only next to the massively multiplayer online role-playing games (MMORPGs) [2].

FPS games have the intersection of properties including mainly developed for the arcade shooting games and flight simulation games, and console gun games [3]. The genre has been popular with early classic games such as DOOM series and Quake series as we may call a classic or old-school-shooter. Then, with multiple players' environment, many FPS games have experienced successes with military subjects where the background narrative is the World War II or anti-terrorism or a.k.a. military actions. Some researchers call it as 'military themed FPS' [3-4]. Such models are encouraged by the runaway success of Call of Duty 4: Modern Warfare and the relative simplicity of the gameplay template it established. Games in this category include Rainbow six, Counter Strike, Sudden Attack, Point Blank, and Alliance of Valiant Arms (AVA). Typical gameplay focuses on survival from invasion or combat situations with plots of escape, rescue, occupation and demolitions [3]. Team Fortress series addresses a team match in this genre in that players join

one of two teams comprising multiple character classes, battling in a variety of game modes including capture the flag and king of the hill [5]. Many other games adopt such team match mode with different roles and weapons. With additional rules, the game may have several modes such as team death match, elimination, free-for-all single play, and the last-man-standing [6].

Recently, Overwatch, a fast-paced team-based old-school-shooter-like FPS enjoyed big success in Korean game market such that it stops 203 weeks streak of leading PC room share by League of Legends after just one month of its release in 2016. Since then, Overwatch has been one of the top 3 PC room share chart in playing hours [7]. Overwatch assigns players into two teams of six, with each player selecting from a roster of over 20 characters, known as "heroes", each with a unique style of play whose roles are divided into three general categories that fit their role. Players on a team work together to secure and defend control points on a map or escort a payload across the map in a limited amount of time. The reason of such success has been analyzed as freshness, character attachment, and short play time based on thousands of Overwatch gamers survey [8] or well-balanced hero characteristics with their signature skills and Aeon of Strife (AOS) like aspects that are borrowed from real time strategy (RTS) genre by field experts [9].

There was another big wave of different style of FPS in 2017. While released as an early access mode in March, 2017, Player Unknown's Battleground (PUBG) had surpassed long-standing popular titles in concurrent player count on Steam, such as Fallout 4 and Grand Theft Auto V, eventually overtaking Dota 2, the most played game on the platform for years, in August 2017 [10]. The game is based on previous mods that were created by Brendan "PlayerUnknown" Greene for other games using the film Battle Royale for inspiration, and expanded into a standalone game under Greene's creative direction. In the game, up to one hundred players parachute onto an island and scavenge for weapons and equipment to kill others while avoiding getting killed themselves. The available safe area of the game's map decreases in size over time, directing surviving players into tighter areas to force encounters. The last player or team standing wins the round. The game maintains the dramatic tension through the intersection of uncertainty and inevitability. Uncertainty is reinforced by randomness of the game world and hidden information of player statement. Inevitability is emerged from the level design with choke point, and restriction of playable field over time [11]. In very recent market research, PUBG leads the PC room share in playing hours [7].

In this paper, we take a comparative analysis of three FPS games that show their own distinctive play style while sharing FPS characteristics. We choose Alliance of Valiant Arms (AVA) as a typical military-themed FPS since it enjoys 11 years of history in Korean market. Overwatch and PUBG are also selected as targets to analyze because of their distinctive characteristics within FPS structures as well as recent impressive commercial successes. Our analysis will focus on the weapon system as a player balancing tool of such team-based games as well as general combat structures and game modes to understand their differences in playing goals and strategies.

2. ANALYSIS OF GAME STRUCTURES AND MODES

As a typical military themed FPS, AVA has a classic combat user interface shown as Figure 1. Players will join either the EU forces or NRF forces and attempt to complete their mission objective or eliminate the opposing team. There are 3 classes available - point man, rifleman, and sniper. A point man enjoys a quicker reload time and faster move speed, while a rifleman gains more ammo and the ability to hold more, along with heavier armor, and a sniper is allowed to use a sniper rifle and can fire shots that kill multiple targets.



Figure 1. AVA Combat Scene

Weapons are given to players from the start and the ability of weapons are predefined but it can be enhanced partly as the game proceeds. Some special skills are trainable with respect to the classes that the user selected. Parachute drop is possible but inappropriate use of the parachute can give the falling damage to the player. AVA has many different game modes shown as Table 1.

Overwatch features a number of different game modes as shown in Table 2, principally designed around squad-based combat with two opposing teams of six players each. Players select one of over two dozen pre-made hero characters from one of three class types: *Damage* heroes that deal most of the damage to attack or defend control points, *Tank* heroes that can absorb a large amount of damage, and *Support* heroes that provide healing or other buffs for their teammates. There are many character-specialized weapons and skills and a typical combat scene is shown as Figure 2. However, for each hero, the number of available weapon kinds are limited.

Table 1. Main Game Modes in AVA

Mode	Explanation
Annihilation	Team Deathmatch to reach a preset score or a team wins with the higher score when time runs out.
Demolition	The EU forces must plant the bomb at one of the two bomb points while the NRF forces are tasked with stopping them.
Escort	The EU forces must escort a tank past enemy lines, while the NRF forces will be tasked with preventing this
Domination	Both teams compete for domination over a target.
Cross Steal	Both teams are tasked with retrieving the enemy's launch key and returning it to their own base, while defending their own.
Escape	EU troops try to escape to a waiting boat while NRF troops try to stop them.
Free-for-All	Players are pit against each other. (Individual)



Figure 2. Overwatch Combat Scene

Table 2. Overwatch Main Game Modes

Mode	Explanation
Assault	The attacking team must take two capture points, while the defending team attempts to prevent them until the time runs out.
Control	Two teams fight over a capture point in a best-of-three format.
Escort	The attacking team must escort a payload to a delivery point, while the defending team attempts to prevent them until the time runs out.
Hybrid	Hybrid is a game mode in which combines two types of other game modes.

For PUBG, although the main goal of the game is the last man standing, it offers duo or squad options in playing as shown un Table 3. However, there is no distinctive role inside the team. All equipments/weapons and vehciles should be obtained within the game situation as shown in Figure 3(b) and the combat is performed by using equipments that a player obtains in the game. The game proceeds with repetitive such item farming – moving – combat cycles. Thus, unlike AVA, the weapons and associated

ammunition should be farmed before the combat. There are much more logical selections the player should made with decreasing map size over time. PUBG also offers third-person-view as well as first-person-view.



(a) Combat Scene

(b) Dropping Supplies

Figure 3. PUBG Combat and Supplies Dropping

Table 3. PUBGGame Modes

Mode	Explanation
Solo	Complete free for all, kill everyone, be the last one alive.
Duo	Player will be paired up with another individual and will compete to be the last ones alive.
Squad	Players are organized into teams in groups of 2, 3 or 4 players and pitted against each other.

The different combat elements three analyzed games have are summerized in Table 4.

Table 4. Combet Elements Comparison

Combat Elements	AVA	Overwatch	PUBG
Healing	X	O	O
Weather	X	X	O
Special Weapon	O	X	O
Roles	O	O	X
Weapon Diversity	O	X	O
Falling Damage	O	X	O
Main Goal	Annihilation	Team Win	Survival

3. WEAPONS AND PLAYER BALANCING

In FPS, weapons can be used to instill a sense of artificial character development [12]. Also, weapon design can guide the pacing of the game while encouraging the player to develop their own skills [13]. Weapon patterns may include the affordance, consequence, and level patterns. Weapon design and related skills affect the game playing patterns and level design. Weapons may be classified into groups such as sniping weapon, close blast, assault weapon, projectiles, power weapon, melee weapon, and placed weapon [14]

In classical military-themed FPS like AVA, weapons are given to the player and according to their roles, weapons have their strengths and weaknesses. Thus, in this type of FPS, weapons do affect the performance but not too much related with the player/team balancing. Some weapons used in AVA with respect to player roles are shown in Figure 4.

In team based FPS, since a team consists of players with different skill levels, player balancing is essential to make players maximally entertaining the game [15]. Player balancing attempts to provide assists to weaker players (or detriments to stronger players) in order to provide a more competitive game [16]. The issues of balancing competitive multiplayer games have led to research into ways of achieving this balance. The general approaches game researchers have developed to solve this problem can be categorized into difficulty adjustment, matchmaking, asymmetric roles, and aim assistance. However, these techniques have limitations for deployment when skill levels vary substantially [17].



Figure 4. Weapons in AVA with respect to Player Roles

In Overwatch, player characters (heroes) not only have different roles but also they have different specialized weapons and skills attached to them. By designing like that, Overwatch makes matchmaking and giving different roles more balanced than other FPS games. The “ultimate” skill that is a high-risk-high-return skills can shake the result of the combat. Thus, relatively unexperienced players can contribute to the team performance in that way. Table 5 summarizes different heroes’ roles, weapons, and ultimate skills.

Table 5. Overwatch Heroes – Weapons and Ultimate Skills

Name	Role	Weapon					Skill
		Melee	Hitscan	Projectile	Shotgun	Beams	
D.Va	Tank		o	o	o		WA
Orisa	Tank			o			SF
Reinhardt	Tank	o					LS
Roadhog	Tank			o	o		CO
Winston	Tank	o				o	CO
Zarya	Tank			o		o	LS
Bastion	Damage-D		o	o			SS
Doomfist	Damage-A	o		o	o		LF
Genji	Damage-A	o		o			SS
Hanzo	Damage-D			o			WA
Junkrat	Damage-D			o			LF
McCree	Damage-A		o				LF
Mei	Damage-D			o		o	LS
Pharah	Damage-A			o			LF
Reaper	Damage-A		o		o		LF
Soldier:76	Damage-A		o				SS
Sombra	Damage-A		o				AS
Symmetra	Damage-D					o	AS
Torbjorn	Damage-D	o		o	o		SS
Tracer	Damage-A		o				LF
Widowmaker	Damage-A		o				AS
Ana	Support		o	o			SF
Brigitte	Support	o					LH
Lucio	Support			o			LH
Mercy	Support			o		o	SS
Moira	Support					o	SS
Zenyatta	Support			o			LH

Key: Damage-A: Damage-Attack Damage-D: Damage-Defense AS: Assist CO: Composite
 LF: Large Fire LH: Large Healing SF: Strengthen Force SS: Strengthen Self
 WA: Wide Area Attack WS: Wide Area Stern

In PUBG, since it is basically a last-man-standing game, there is no need to make player balance in the team. However, the player’s performance is affected by items farmed and ammunitions are associated with specific guns/rifles as shown in Table 6. Thus, players should make strategic decisions on what items he/she should obtain and use at the specific combat scene more often than other types of FPS.

Table 6. Weapon-Ammunition composition in PUBG

Ammunition	5.56mm	7.62mm	9mm	.45 ACP	12 Gauge	300 magnum
Weight	0.5	0.7	0.375	0.4	1.25	1
Assault Rifle	M16A4	AKM				
	M416	Groza				
	SCAR-L					
	AUG					
Designated Marksman Rifle	QBZ95		VSS			
	Mini14	SKS				
	QBU	SLR				
Sniper Rifle		Mk14				
		Kar98k				AWM
		M24				
Sub Machine Gun.			Micro UZI	Tommy Gun		
			UMP9	Vector		
Light Machine Gun.	M249	DP-28			S1897	
					S686	
Shotgun					S12K	

Thus, weapons in AVA are only associated with player roles whereas weapons in Overwatch has specific ties with the player character and associated skills to make better player balance in the team. Weapons and its relationship with ammunition in PUBG requires more strategic decision making in game playing.

The weapon system is important to provide appropriate level design in the game. By forcing the player to use particular weapons in certain parts of a level, the level designer utilizes the relationships between the weapon and level to best control the experience and gameplay [14]. In FPS game structure, the player should have many cognitive logical decision making at what weapons are best suited for a certain area or situation. That might be the reason of psychologically positive impact of FPS players showing significantly shorter reaction time while switching between complex cognitive tasks compared to non-players [18].

4. CONCLUSION

FPS games have had a long history of successes in the game market as early as Wolfenstein 3D (1992) and Doom (1993). Apart from such classical FPS, military-themed FPS games such as Call of Duty, Sudden Attack and AVA utilize realistic situations of war or terror with “close-to-real” weapons and effects. However, this reality simulated action FPS games have been the topic of “being impulsive in real life” [19] or “induce inappropriate militarism” for youngsters [4].

From the view of market reception, FPS has been the second most favored genre among young Korean male gamers [2] and two games analyzed in this paper – Overwatch and PUBG – stand within top 3 PC room share in playing time until very recently [7]. However, at the same time, the traditional military-themed FPS games have shrunken in the market and the boredom due to repetitive game actions is regarded as the main reason of such struggle [9].

Thus, in this paper, we analyze three FPS games of different subgenres on their game modes and structures and the weapon system in particular. Alliance of Valiant Arms (AVA) is selected as the model of traditional military-themed FPS and Overwatch as the resurrected classical old-school-shooter and Player Unknowns’ Battleground (PUBG) as the ‘Battle Royale’ type FPS.




In comparison, AVA provides the most diverse game modes but the player balancing inside the team is only accomplished with limited number of player roles and their predefined/supplied set of weapons. In contrast, Overwatch, with fantastic weapons and skills borrowed from AOS style, provides the most diverse player character–weapon–skill relationships with different roles in the team. Such relationships shown in Table 5 might be the reason of success in player balancing and consumer reception. PUBG, an open world last-man-standing type game maintains the dramatic tension through the uncertainty reinforced by randomness of the game world and hidden information of player statement and the inevitability emerged from the level design with choke point, and restriction of playable field over time.

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BIBLIOGRAPHY OF AUTHORS

	<p>Dr. Hae Kyung Rhee obtained her B.S. from Sungsil University, Korea in 1979, M.S. from University of Illinois at Urbana-Champaign, USA in 1985, Ph. D. at Sungkunkuan University, Korea in Computer Science in respectively. She has been a professor at Department of Computer Games, Yong-in SongDam College, Korea, since 2001. Her research area includes database development, data modelling in Game design, Information Security.</p>
	<p>Prof. Doo Heon Song received his B.S. from Seoul National University, Korea in 1981 and M.S. from the Korea Advanced Institute of Science and Technology in 1983 in Computer Science. He received his Ph.D. Certificate in Computer Science from the University of California at Irvine, USA in 1994. He has been a professor at Department of Computer Games, Yong-in SongDam College, Korea, since 1997. His research interests include machine learning, artificial intelligence, fuzzy systems, medical image processing, and computer game design. He is currently the associate editor of Journal of Information and Communication Convergence Engineering.</p>
	<p>Prof. Jeong Hoon Kim received his B.S. from Seoul University, Korea in 1991 and M. S. from Yonsei University, Korea in 1994 in Computer Science. He was one of key developers of online MMORPG <i>Lineage tournament</i> from NCSOFT during 1999-2001 and developed several mobile games in Softgen, Inc. until 2003. He joined with faculty members of Department of Computer Games, Yong-in SongDam College, Korea since 2003. His research interests include developing mobile games and online games.</p>