



A Brief Review of Multiplayer Online Battle Arena (MOBA) Games

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ABSTRACT

Multiplayer Online Battle Arena (MOBA) games nowadays have taken the majority of the game market. Professional leagues for these games are held worldwide. However, some signs have occurred showing that the problems in the MOBA game market are getting more serious and leading to the loss of long-time-players, which may bring problems to those professional leagues, because the loss of long-time-players increases the unstable factors towards revenue. Although games like Honor of Kings have tried to solve the problem, the method they choose is limited within the range of providing coupons or discount activities, which have been proven to be ineffective. Therefore, a brief review has been conducted to determine the rules of MOBA games. It provides a sample for the game company and individual game designers and developers to refer to when trying to create or adjust the game rules to find a possible solution and improve the rules of MOBA games. The output revealed that the enhanced version of the MOBA game rules could be a viable strategy to entice long-time players to return to the game. The rules are appealing enough to serve as a model for the industry and individual players looking to improve the gaming rules of MOBA games.

Keywords:

Video Game, MOBA game, Card game, Game System, Game rule, Game development, Game market, User experience, Online Game, Game AI, Game UI, Unity, Photon

INTRODUCTION

An activity that can bring pleasure to those who participate could be called a game (Computer Hope, 2022). To summarize the definition of a game in one sentence is “A game is an activity that contains some criteria.” These criteria include game rules, goals, different courses, and competition. It defines the game in terms of game rules. Things that were not defined in the rules were not deemed part of the games in question (Computer Hope, 2022). Individuals who participate in a game have a strong tendency to adhere to the game's regulations. The second criterion, goals of a game, can be divided into two parts, which are the victory condition or requirements and the strategy needed to win the game (Computer Hope, 2022). For these two conditions, the second one, which is the strategy needed to win the game, always turns out to be the pre-requirements of the victory condition and requirements. The main difference is that reaching the second goal will increase your possibility to reach the first; however, the second goal is never a necessary requirement to win the game. Next, the course of the game refers to a player gaining different experiences each time he or she plays it. This means, within a game, there should be a random generator, different start-up situations, incomplete information, or a high number of move options. In this research, the focus of the improvement falls on different start-up situations. Last but not least, for competition, each game would demonstrate competition. It is not necessary to be a competition between players, but could also be a competition between players and the game system (Computer Hope, 2022). The history of video games could be dated back to the 20th century. In 1971, the arcade game, Computer Space, was released and was followed up by Atari Inc's first commercially successful video game, Pong (Wardrip-Fruin, 2021). After walks into the 1980s, the game market started to boom. The year 1982 saw the industry's peak with a revenue of \$8 billion, which overtook annual revenues for pop music and Hollywood films combined (Wardrip-Fruin, 2021; Nyitray, 2019). In 1981, the first RTS (real-time strategy) game called “Utopia”, was released. In this genre, the Multiplayer on-line Battle Arena (MOBA) is a sub-genre that allows the presence of two teams to battle against each other. Since that, MOBA games have gradually become one of the most famous game types within all the games. The daily users of the game, League of Legends, have reached 8,000,000 users, almost equal to the summation of the total daily usage of the top three games on Steam. Moreover, Honor of Kings has been first in

Apple's App store for a long time yet it is still losing of long-time-players increases the unstable factors towards revenue. Therefore, this study emphasized on game rules to find a possible solution and improve the rules of MOBA games.

LITERATURE REVIEW

The word MOBA is the shorthand for Multiplayer Online Battle Arena, but some people also call it Action Real-Time Strategy (RTS, ARTS). Specifically, ARTS and RTS games are more complex than a real MOBA game like Honor of Kings and League of Legends (LOL). Mainly, in an RTS and ARTS game, the player needs to control more units like an army, buildings, and more than one hero rather than one main hero. However, players only need to focus on one character in an MOBA game. This means that MOBA games place a greater emphasis on the gaming experience, game mechanics, and player enjoyment. This is exactly why MOBA games, rather than RTS or ARTS games, currently account for the majority of the market. The MOBA games that will be discussed are the ones in transition from the 1990's to 2000's. Although many people believe games like DOTA and LOL were the first MOBA games, there was a game called Herzog Zwei, published by Sega and developed by Technosoft back in 1989, and is considered the first modern MOBA game (MOBA esports: The history and evolution of the MOBA games, 2021). DOTA is still considered the first esports MOBA game, which serves as a sample for later games. This is the reason why League of Legends (2009 -) and DOTA 2 (2013 -) were initially called DOTA-like games (MOBA esports: The history and evolution of the MOBA games, 2021). Until now, with the advancements in mobile device capabilities, mobile MOBA games such as Honor of Kings and League of Legends Mobile have accounted for a significant percentage of the MOBA gaming market. However, since the rules of MOBA games stopped evolving for quite a long time, it seems that emotions like boredom have now grown. The facts can be found from the two graphs below (Aurora Mobile, 2020; Q1 mobile Internet industry data research report, 2020; Aurora Mobile, 2018; Annual Mobile Gaming Industry Research Report, 2018). Figures 1.4 and 1.5 show that Honor of Kings' user penetration peaked at roughly 23% in early 2018 and has since dropped to 17.7% by the end of 2020.

A new gaming mechanism will be developed and tested to find a feasible solution to this situation. Moreover, as part of this research, it is proposed to insert the core gaming mechanism of a famous card game called Fight The Landlord into MOBA games. By doing so, there might be a chance to push the evolution of MOBA games to attract more players and insert more types of communication, cooperation, and competition into a MOBA game (Qiuxia & Yigang, 2021). This study intends to develop a new gaming mechanism to explore the potential of MOBA games, thereby stimulating the MOBA game industry and making games more appealing to long-term players.



Figure 1.4. The user penetration of Honor of Kings in 2020



Figure 1.5. The user penetration of Honor of Kings in 2018 (The Green line stands for Honor of Kings)

Existing system to the ordinary MOBA game mode

Table 2.2. Elements of MOBA game (D. Polančec, 2017)

System	Description
Heroes	Heroes are the control unit of MOBA games. There will be a set of heroes waiting for the player to choose within most of the MOBA games. Different heroes always have different skills.
Teams	For most of the MOBA games, there are two to six players in a team, and there are always two teams going against each other.
Skills	The skills here refer to the special action that each hero allows the player to use under some restrictions.
Resources	Known as coins in most of the MOBA games. They are usually used to buy equipment or activate skills during battle.
Base	Areas where the battle is taking place.
Lanes	The path that leads the player from one base to the other. For most of the game, there will be three lanes in total.
Creeps	Units controlled by artificial intelligence, which also have health.

The seven elements listed above are the basic elements of a traditional MOBA game. They could be divided into three different regions, which are player control elements, game world elements, and game rule elements. Heroes, Skills, and Resources are part of the player control elements, while Base, Lanes, and Creeps constitute the game world elements. Finally, Teams is part of the game rule elements. For current MOBA games in the market, when dealing with the problem stated by this paper, most of the companies would pay attention to player control elements and game world elements. However, game rule elements are often dismissed.

EXISTING MOBA GAMES

Honor of Kings

Honor of Kings is an MOBA game operating on Android, iOS, and NS platforms developed and run by Tencent Game Timi Studio Group. The overall game was produced using Unity 3D engine. It was officially beta tested on Android and iOS platforms on November 26, 2015. The early use names for the game include "League of Kings" and "Arena of Valor". The European and American versions of Honor of Kings were released on the Nintendo Switch in 2018 (Liu & Wang, 2019).

Honor of Kings provides an environment for competition between players in 1V1, 3V3, 5V5, and other ways of Player versus Player (PvP) battle. The player can also participate in an adventure mode and PvE pass modes. Although the game provides different game modes, almost all the players only play the 5V5 game mode, whose main objective is to defeat the enemies and destroy their main tower. "Sail Through Wind" is a special game mode provided by Timi Game Studio in the game Honor of Kings. This game mode is available for players to try between July 1st, 2020, and August 9th, 2020. Inside this new game mode, a player can choose his team before starting the game. There are two different types of teams. The first one is called the Wei kingdom; in this team, there are five players in total, and a special skill can let any number of team members get on the same boat sailing on the map, finding their enemies. On the contrary, the second team, Shu & Wu Kingdom, has six players. Although they can also sail on the boat, only two members are allowed at maximum (Bulilieuxingdong, 2020). The background story of this game mode is a famous battle in the Three Kingdoms era. China was held by three different kingdoms called Wei, Shu, and Wu at that period. The Wei Kingdom is the strongest, with more army and more land than the Shu kingdom and Wu kingdom. To take over China, the King of the Wei Kingdom decided to set up thousands of ships with millions of soldiers heading to the Southern part of China to fight with the Shu and Wu kingdoms. The Shu kingdom signed a contract with the Wu kingdom to fight against the Wei kingdom to survive. This is why in the game mode, the Shu & Wu kingdom is allowed to have six players in the team simultaneously. The moment this game mode was released, it fired up players. Many players got addicted to this game mode because it was different from any other existing game modes.

However, the game mode only existed for a month. Although many players found the game mode interesting, Timi Game Studio did not manage to control the game's balance well. Although the designer inserted a new system inside the game, this might have been because the basic game rules remained the same. For example, for a team with six players, the total amount of coins they can get from killing the AI soldiers are the same. However, the team with five players will divide those coins among five characters, and the other team will divide among six players. It shows that the team with five players had a higher winning rate when compared to the other team. Although six players should be more robust than five players, the difference in equipment plays a more important role than the number of players. This "Sail Through Wind" game mode provides this research with a perfect model. It proves that inserting a new system inside an MOBA game can bring success. At the same time, its failure also proves that although a new gaming mechanism can light the interest of players, if the game's balance cannot be maintained, it will lead to failure.



Figure 2.2. Honor of Kings

League of Legends

League of Legends, or LOL for short, is a hero-to-war MOBA competitive online game developed by Riot Games, and for the Chinese mainland, it is operated by Tencent's game agency. The game has hundreds of personality heroes, and has a ranking system, rune system, and other characteristics of the development system. League of Legends is committed to promoting the development of global esports. One of the initiatives taken was creating an e-competition system in the form of three world-class events, which are League of Legend Mid-Season Championship, League of Legend Global Finals, and League of Legend All-Star Game. On May 14, 2018, League of Heroes joined the Asian Games as one of the acting events. On November 5, 2021, League of Legends was selected as the 19th "Asian Games" e-competition event, which was the first time that esports had become an official competition for the Asian Games. This showed the world the charm of esports, and the medals won by the games will be included in the nation's medal tally. On September 17, 2019, on the 10th anniversary of League of Heroes, the game released its new LOGO, announcing that more than eight million players are online every day, meaning that the league remains the world's largest computer game for players (Riot Games, 2019). DOTA 2 is a game developed by IceFrog, which began its testing on April 28, 2013. DOTA 2 won the 2013 Best Strategy Game and Best Multiplayer Award. It is called the fairest and most tactically deep work of its kind. Combining the twin elements of RPG and RTS, the diversity is enough to keep thousands of people fighting. On September 8, 2021, it was officially announced that eight projects, including DOTA 2, would be unveiled at next year's Asian Games. The games mentioned above can be considered as the most famous MOBA games in the market. Although the artwork for each game is different, they all share one same basic game rule which makes them quite similar. Honor of Kings once tried to improve its game rules but eventually failed. However, their action has shown other companies in the world that changing the game rules might be a useful way to bring long-time players back.

Therefore, we can see that both companies who developed Honor of Kings and League of Legend get great success by these two games. However, they still need to figure out how to deal with the problem that long-time players may greatly loss through time.



Figure 2.3. League of Legend



Figure 2.4. Dota

GAME BALANCE

Game balance plays an important role in many types of games. In a real-time-strategy game, the designer should pay attention to the attributes of each army unit in the game to obtain balance in the game. Things like a particular unit are too powerful and cost too low, which is unacceptable. Game balance is even more significant in board games and card games. The functionality of each card and its restraint card should be designed properly. All these specially designed properties combined together will form what we call Gameplay. This will give the player multiple choices during the game and force them to choose multiple choices during the game and force them to proceed with the game (Chai & Liu, 2021).

Several factors could be considered in order to achieve game balance. The positive and negative buff given by the game, the design of characters, the design of the weapon, and other resources that could be purchased during the game, etc. The positive and negative buffs provided to the player during the game will affect the balance of the game. The balance here did not refer to equal. The player who triggers some bad events should receive negative feedback and make himself step into a weak position. On the contrary, his opponent should receive positive feedback and step into a strong position. The design of the characters must also be carefully examined. Sure, each character must be built uniquely, but there is one law that applies to all characters: if certain benefits are provided, certain limitations must be provided as well. For example, a character with a high hit point should not be given high moving speed, and a character with high damage should not be given high hit points (Chai & Liu, 2021). Things that could be purchased during the game are also important. The things here, always refer to the equipment and weapons that could be bought in the store (Like Honor of Kings and League of Legends). Tencent and Riot Games spent years improving their equipment systems and adjusting the attributes of weapons from time to time. All these efforts are to keep the game a balanced one.

Besides, the environment design also plays an important role in keeping the game's balance. Methods like using a map design to reach the balance of the game could be found everywhere. Take the game, "Counter Strike Global Offensive" as an example, to design the map, the designer calculates the shortest time for each team to get certain points. Adjusting the length of certain roads on the map can give one side an advantage and disadvantage over the other. Theoretically, the two teams in the MOBA game should have exactly the same settings. However, based on current research, the two teams will have distinct numbers of members as well as separate boosts and debuffs. To keep the game balanced, the environment's design should be carefully examined. The absence of interest in current tasks causes an unpleasant, fleeting emotional experience as well as a state of tension that has no purpose for activities or life. When someone feels bored, they are unable to focus on anything and are just aware of the meaninglessness of the action. Boredom is thought to be caused by repetitive boring work and living, according to early studies (Mikulas & Vodanovich, 1993). For the time being, some research has discovered that people become bored only when they perceive the monotony of the work and that the interpretation of the meaning of the work is the most important factor in boredom. According to new research, boredom may be avoided by emphasizing the task's function and providing the work meaning. When we apply these results about boredom to the current state of MOBA games, we can see why their popularity is plateauing. No one wants to try an MOBA game because of the current environment. On the contrary, the number of new players in MOBA games like Honor of Kings and League of Legends have never declined. Long-term players abandon the game. The reason for this is because boredom has taken away their sense of interest. Long-term players are bored since the game rules and mechanisms for MOBA games, particularly for titles like Honor of Kings and League of Legends, have been stagnant for a long time. Each round of the game appears to be the same, and long-term participants lose their worry as time passes (Aurora Mobile, 2020; Q1 mobile Internet industry data research report, 2020; Ohlmeier, 2020; Aurora Mobile, 2018; Annual Mobile Gaming Industry Research Report, 2018). Thus, to find a possible solution for MOBA game company to deal with the problem of losing long-time player,

the core idea is to add something new to the game to let the player re-gain the sense of interest and in the meantime, maintain the balance of the game.

FUTURE WORK AND CONCLUSION

For future work, an enhanced system will refer to a team selection system. The player who entered the game would stay in a fixed area before the game started. The player can only control the player to move around until the required number of players get into the server. After that, the team selection page will show up. A buff would be given to each player and they would need to decide to choose which team to stay.

Currently, MOBA games still take the No.1 position in the overall game market; however, there is evidence that shows the popularity of MOBA games has stopped increasing and a portion of long-time players have given up on the games. According to the situation, the study's goal is to see if an entirely new game rule can better the situation and use this study as a model for the game industry or individual game designers and developers when seeking to improve the game rules of a specific game. Nowadays, games like Honor of Kings, which has its own professional league in China called KPL, can get a sponsor of more than 200 million RMB per year (Aurora Mobile, NASDAQ: JG, 2020). If the situation of MOBA worsens, it will definitely affect the entire industrial chain. Although Sail Through Wind mode created by Honor of Kings did not solve the problem entirely, it showed that improving traditional MOBA rules is a useful step in the game market. This review shows that this enhanced version of the MOBA game rule has the potential to improve the current MOBA game industrial situation. It proves that combining the core systems of two different games together could be a way to generate a totally new game rule.

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