Cheating Behaviors in Online Gaming

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Abstract. Online game cheating is a rampant misbehavior in the domain of online gaming. However, there is still lack of research in attempt to understand online game cheating. Hence, this paper focuses on the available literature on cheating and gaming to explore and understand the phenomenon of online game cheating. This paper examines the frameworks of cheating and how virtual community is affected by this misbehavior. This paper also explores the concept of fairness in gaming. The implications are discussed in conclusion.

Keywords: Online game cheating, cheating frameworks, online game fairness.

1   Introduction

Online games have become an important leisure activity for many people. However, with a surge of online game cheating, the change in gaming experiences has affected both gamers and gaming developers. In the past, computer games are played in one player mode (against a computer opponent). A human player will try all means to defeat the computer player, either legally or illegally. Nonetheless, the computer is less concerned about which gaming methods human player explores to win the game. These methods may include exploiting the loophole of the game that is illegal means of winning. The cheating outcomes do not affect other players. While online games are rising to be one of the most popular applications, it is not surprising that online game cheating has become a widespread online deviant behavior concurrently. Some scholars [1-4] have adverted that cheating is a new but pressing issue in the domain of online computer games. Nowadays, most of the online games are designed to allow players to compete and cooperate with other human players. Hence, the new gaming dynamics appear to be more interesting and challenging since human players are less predictable as compared to computer players. With this, players found a new meaning on winning as they experience a stronger sense of accomplishment when they win. Eventually, the main goal of the gaming is to win and in order to win, some players are willing to cheat to get ahead of others.

1.1   Definition of Online Gaming Cheating

Cheating behavior in online games is rampant and security threatening to both gamers and gaming companies. Still, there is no one definition that is generally accepted

given that different game companies vary in the criteria use to determine which are cheating behaviors. This lack of consistency [3] is due to: 1) Online game cheating is a topic in its infantry to researchers, 2) Wide variety of online game genres leads to different forms of cheating, and 3) Newer cheats are constantly invented as the security companies defended the older cheats.

Sometimes it is almost impossible to distinguish smart play, e.g. good use of tactics, from cheating. To draw the fine line between cheating and good playing tactics, cheating [2] is defined as "Any behavior that a player may use to get an *unfair advantage*, or achieve a target that he is not supposed to be." Cheating [3] is then redefined as "Any behavior that a player uses to gain an advantage or achieve a target in an online game is cheating if, according to the game rules or at the discretion of the game operator (i.e. the game service provider, who is not necessarily the developer of the game), the advantage is unfair to his peer players or the target is one that he is not supposed to have achieved." A more technical definition of cheating [5] is "a process, a code tweak, an exploitation of a glitch or a hack that allows the player to engage in behavior that is not intended within the context of the game". Overall these definitions can be summed up into 3 parts: 1) cheating involves exploiting loopholes in the game systems, 2) such behaviors leads to unfair advantages over other players, 3) these advantages are unfair because gamers are not supposed to be achieved according to the gaming rules or codes of conduct.

Cheating was very popular in single player console or PC games. Human player could make use of cheating tools or code to accomplish the mission goals faster and easier. In fact, most games are developed with a set of cheat codes for single player mode. These cheat codes only function during single player mode. For this single player mode, cheaters were cheating the computer thus nobody would care. However, for online games, the cheaters are cheating human players who were playing on the network. The players who were cheated would definitely care and be angry or happy. It is commonly believed that online cheating ruins good games and result in users giving up, especially driving away new users. As such cheating behavior not only annoys players but also important for game server for retention of players.

1.2   Taxonomy of Online Game Cheating

Although a range online game cheating behaviors have been reported over the past decade both directly and indirectly, for the purpose of this paper, only two most commonly cited frameworks are discussed.

1.3   Six-Category Framework

A six-category framework [1] for online cheating was proposed to comprise of reflex augmentation, authoritative clients, information exposure, compromised servers, bugs and design loopholes, and environmental weaknesses.

Reflex augmentation is when gamers exploit "a computer program to replace human reactions to produce superior results". Since this type of cheating mainly stresses on reflexes and reaction times, it is most commonly found in action games. On example of *reflex augmentation* is the aiming bot (that is one type of aiming proxy) that is found in Counter Strike to help cheaters to aim a target. *Authoritative*

clients are imposed upon other players who blindly accepted modified copy of game. In other words, gamers hacked other players so that the peer players' game properties are being changed. Gamers who cheat through *information exp*osure are those who gain "access or visibility to hidden information" by compromising client software. In a way, *information exposure* is different from authoritative clients because it doesn't change the communications with other players as the commands are normal. *Compromised servers* are cheating behaviors in which gamers modified server configurations to get unfair advantages. Gamers are also known to exploit *bugs and design loopholes* in software to cheat. *Environmental weaknesses* are identified as to exploit "particular hardware or operating conditions".

However, one shortcoming of Pritchard's framework is that it is "*ad-hoc*" [2, 3]. In addition, this framework only covers a number of cheating behaviors while many more cheating behaviors can be found in game systems.

1.4 Taxonomy of Cheating

A more specific taxonomy in which it has extended into 15 common cheating methods in online games was developed [4]. The classification scheme for online game cheating includes underlying cause, cheating consequence and cheating principal.

- *Cheating due to misplace trust.* When gamers are given too much trust, cheaters will abuse this trust through modifying code and data on the client side. This type of cheating behavior is caused by the *inadequacy of the game system*, in which cheaters exploit a flaw in the game system, underlying network/operating system, or both. The consequence of such cheating behavior leads to integrity failure or failure to prevent *code and data modification*. The cheating principal for this type of cheating is usually *single player*.
- *Cheating by collusion.* Sometimes, players try to attain unfair advantages through conspiring, and this is often caused by *operational failure* that is also known as human-computer interaction failure that occurs during operational phase of a game system. The consequence of it would be *theft of information and possessions in game*. The cheating principals are mainly *multiple players*.
- *Cheating by abusing game procedure.* This form of cheating is done through when gamers realize that they are likely to lose in a game and so they quickly disconnect themselves from the game system to avoid losing. This often only applies to games that involved ranking. Again, this is caused by *operational failure* of the game system in which usually results in *fairness violation* between peer-players. The culprit is usually *single player*.
- *Cheating related to virtual assets.* Cheating can occur due to the virtual items or characters in online game have real life value such as to trade for monetary benefits. Since acquiring good items and well-equipped characters require both time and skills, players who are lack of such criteria could choose to advance their characters through purchasing these auctioned items and characters on auction websites i.e., eBay. *Single player* are usually found to engage in such behavior are exploiting *players' vulnerability*. This action often leads to *fairness violation*.

- *Cheating due to machine intelligence.* Some artificial intelligence techniques can be acquired to achieve game superiority. This form of cheating strongly relies on 1) if the game's properties allow to be modeled as a computable problem and 2) the availability of artificial intelligence research on such game. *Single player* exploits the *operational failure* may result in *fairness violation*.
- *Cheating via the graphics driver.* Gamers can cheat through creating transparent walls in some online games by modifying the graphics driver. With these transparent walls, cheaters can locate other players in the game that otherwise are supposed to be hidden. These *single players* abuse the *system design inadequacy in the underlying system*. The behavior leads to a breach of integrity through *code and data modification*.
- *Cheating by denying services to peer players.* Delaying opponents' responses via flooding their network connection is another form of cheating behavior. These opponents are likely to be kicked out of the game in order to avoid the game session being affected for the *single-player* culprits have successfully created a delusion that other peer players are suffering from bad networking. This cheating method often caused *service denial* that is a breach of availability, and this is due to the *system design failure in the game system*.
- *Timing cheating.* Such cheating style is to take advantage of holding one's move before knowing the opponents' moves and intentionally dropping update messages at the "right" time. *Single players* who engage in such cheating behavior are misusing the *system design inadequacy in the game system* and this resulted in *fairness violation*.
- *Cheating by compromising passwords.* Cheaters gain access to other gamers' data and authorization through compromising gamers' passwords. This happened because of the *vulnerability of players* and it results in *theft of information and possessions*. The cheaters are mainly *single player*.
- *Cheating due to lack of secrecy.* Cheaters eavesdrop other players' conversations through communication packets and changing game events that are transmitted through the network. This is caused by *system design inadequacy in the game system*. The consequence for this action is *theft of information and possession*. *Single players* are the ones who usually engage in such cheating methods.
- *Cheating due to lack of authentication.* Cheaters exploit the lack of proper mechanism of authentication. The cause of this action is because *system design inadequacy in the game system* and the result of it is a breach of authenticity in which leads to *masquerade*. The cheating principal is usually *single players*.
- *Cheating by exploiting a bug or loophole.* Knowledgeable cheaters exploit the bug or loophole in the design of the game. However, this kind of cheat doesn't involve any data or code modification. The cheating principals are usually *single-players* who exploit *the system design inadequacy in game system* and the consequence for it would be *fairness violation*.
- *Cheating by compromising game servers.* This form of cheat happens when cheaters gain access to the game host system to change the configurations. The results of such cheat leads to *integrity violation* that usually *exploit the system design inadequacy in underlying systems*. The culprits are often *single players*.

- *Cheating related to internal misuse.* When game operators abuse their privilege as the game administrator, this will result in *integrity violation*. The cheat principals are *game operator or the cooperation between game operator and gamers* who exploit the *game operators' vulnerability*.
- *Cheating by social engineering.* Cheaters tricked other gamers to hand over their ID and passwords. *Single users* exploited the *players' vulnerability* and this will lead to *theft of information and possessions*.

2   Understanding Online Game Cheating

Although the taxonomy of cheating [4] proposed the causes for 15 types of cheating that occur during online gaming, still little is explained about why do people cheat in general? Online deviant behaviors or virtual crimes are known to exist in the virtual environment for quite some time.

2.1   Virtual Community

A virtual community in many ways resembles the real world community [6]. One key feature of MMORPG games is that it allows gamers to interact with each other online through the created virtual space. These interactions occur between or among avatars that are gamers' online characters. With this, gamers build close relationships with their online acquaintances who share the similar interests. Hence, the virtual community exists when network of gamers communicate and interact with each other. The virtual community can be built with "diversity, unity and reciprocity". For diversity, players come from different background, countries and culture but share common interests, hobbies and ideas. In spite of the diversity, they unite to have the same objectives and cooperate with one another to accomplish their common goals. Based on these diversity and unity, reciprocity would help them make their relationship longer and better.

One interesting phenomenon that is observed in online gaming is that gamers tend to misbehave more online, which they otherwise won't do in real life [6]. Perhaps it is because the virtual environment allows players to feel "safe" enough to behave in such. Gamers might feel that they are disembodied from their actions because of the physical distance proximity of selves from actions created through Internet [7]. Furthermore, this disembodiment leads to disinhibition that increases misbehaviors [8]. Hence, a virtual community is only considered to be complete with physical and social rules. These rules will enforce members of virtual community to behave.

2.2   Fairness

In general, people assume that there is an unspoken mutual agreement on fairness in both real world and virtual environment. Maintaining online fairness is equally important to both gamers and game companies as they are interrelated. Game companies try to ensure a fair gaming experience to create a desirable gaming atmosphere for gamers to participate. Most of the online games are designed to be challenging to appeal to gamers. Hence, gamers are expected to invest long hours to

complete the game missions or goals. When cheaters use "invincibility cheat" to get through the game, they will never understand the hard work that the normal gamers put into [8]. Furthermore, epic items or *uber* avatars are supposed to be rare that only few can achieve such status. However, when cheating is involved, these rare items and avatars will become ubiquitous and hence they lose their initial values. As a result, when fairness has been violated, gamers will lose interest and quit the game.

In a society (both virtual and real) members are expected to abide by the "rules of conduct" [9]. Therefore, principles of fairness [9, 10] assume that every member of the society or community has the right and responsibility to distribute the benefits and burdens in accordance to individual's participation. The same principles apply to the institution as well. It is only under a fair institution that members of the society or community are able to advance themselves under the given opportunities. Usually, a fair society or community would explicitly state the rules so that its members would abide. Members would mutually expect and trust others to do the same. Since the virtual community is evolved from online gaming [6], it would only be relevant for gamers to expect others to play fair.

3   Conclusion

Online game cheating is a domain still lack of much research in comparison to other online misbehaviors or deviant behaviors such as plagiarism, "computer-focused crimes" include hacking and spreading viruses, illegal downloaded, online pornography and so on [7]. The lack of attention in online game cheating is not because this is an area that is new to scholars, as suggested [4]. In fact, many scholars are highly aware of online game cheating since they game in order to study online gaming. Instead, it is because they don't consider online game cheating as a part of games research [8].

There are many unanswered questions about online gaming. One such important question is what defines online game cheating? There appears to be a gap between the scholars and the gamers' definition on cheating. "Purists" might argue that using strategy guides, walkthroughs are as bad as hacking and using cheat codes [11]. On the other end of the spectrum, some gamers only considered cheaters to be those who are conspiring with other players. Furthermore, previously mentioned, little is known about the motives that drive cheaters to cheat. What are the characteristics of cheaters that can help researchers to predict what types of gamers have the tendency to cheat? These questions are crucial in helping game companies to decrease and prevent cheating in future.

Online game cheating is an area that definitely requires scholars' attention given that the gaming business is predicted to grow tremendously over the years and hence the threat of cheating will continue to rise concurrently. Online game cheating will threaten the players and namely the game companies and its revenues [12]. Given that the online game cheating not only hurts games' reputation, it also deprives many gamers from enjoying the online games; it would be worthwhile to study online game cheating.

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