HI-REZ STUDIOS & UNIVERSITEIT UTRECHT

Hi-Rez Studios' Player Behavior Policy

An evaluation of the effectiveness of Smite's Player Report System

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Abstract

In this research toxic player behavior, which is unacceptable behavior by players in online communities, within Smite has been studied through analyzing Hi-Rez Studios player behavior initiatives and the effectiveness of their Player Report System in an attempt to fully understand which factors, which can be influenced by policy, determine the effectiveness of the Player Report System so that recommendations on how to improve the Player Report System can be provided in order to combat toxic player behavior within Smite. Prior to evaluating the effectiveness of the Player Report System Hi-Rez Studios' Player Behavior policy was examined to determine what mechanisms that underlie the Player Report System could determine the effectiveness of the Player Report System. To determine how well developed Hi-Rez Studios' Player Behavior policy is the Player Behavior policy of two other games got examined. Further, the Player Behavior policy of these other games was used to provide Hi-Rez Studios with recommendations on how to increase the effectiveness of the Player Report System. The effectiveness of Smite's Player Report System has been analyzed by comparing the current effectiveness of the Player Report System with the desired effectiveness of the Player Report System. This research showed that the current Player Report System is ineffective in suspending the desired percentage of players that had exhibited suspension worthy toxic player behavior. Furthermore, this research showed that number of reports can be used as an indicator of whether a player has exhibited toxic player behavior, that it is inconclusive whether the Player Report System is effective in altering the behavior of those players who have been suspended, and that the more competitive/serious players are more likely to exhibit toxic player behavior than the more casual players. The factors, which can be influenced by policy, that determine the effectiveness of Hi-Rez Studios Player Behavior policy regarding the reduction of toxic player behavior are the number of cases that are reviewed, the amount of toxic player behavior that is exhibited and reported, whether reports are filed against players who exhibit toxic player behavior, the number of games of Smite a player has played, and the number of hours per game a player has played Smite. The recommendations provided can be sorted into two categories: proactive policy options, and retroactive policy options. The proactive policy options focus on preventing suspension worthy toxic player behavior to be exhibited, and the retroactive policy options focus on punishing those players who have exhibited suspension worthy toxic player behavior. The policy options that were recommended are: a player behavior alert system, communication restrictions, behavioral guidelines, an automated suspension/ban system for second- and third degree offenses, implementing a suspension notification, simplifying the Customer Support team case review tool, and possibly

expanding the Customer Support team as well as increasing the amount of time they can spend on reviewing cases on a daily basis.

Contents

1. Player behavior and Smite

"Today there are more than half a billion people across the world playing PC, console and mobile games for more than one hour each day. It's estimated that as a planet we clock more than 3 billion hours a week playing these games" (The Journal, 2014). Inspection of the numbers of the Entertainment Software Association (ESA) on Video Games and the gamer population in the United States of America the player population becomes more concrete. About 59 percent of the Americans play video games, which means there is an average of two gamers per U.S. household. Judging by the numbers released by the Entertainment Software Association (ESA) it is almost unthinkable to state that video games aren't a part of our daily life.

With video games invading our daily life it simultaneously invaded our social life, and our social environment (ESA, 2014). This is partially due to gaming in itself becoming more social, in example over 62 percent of gamers play games with others, either in-person or online (ESA, 2014). This is a result of the increased accessibility of multiplayer gaming as a result of technological innovation (ESA, 2014). Most games are playable online and come with a way to interact with other players that play the same game online, and for both online and solely offline playable games, you will find countless forums on which the players of games interact with each other about the game they play (ESA, 2014). With video games becoming an integral part of our daily lives, and player bases of games becoming immense, the player base of a game in itself can often be considered a community (ESA, 2014). In other words, gaming has become both a social activity and a social environment, which is why current day gaming has become sociologically interesting.

In online games people do not just play the game together, they interact with each other. Previous research has shown that people behave differently in an online than in an offline setting (Suler, 2004). In literature this is called the Online Disinhibition Effect: *"the shift to a constellation within self-structure, involving clusters of affect and cognition that differ from the in-person constellation"* (Suler, 2004). Since people behave differently in an offline and an online setting a distinction is made between these forms of behavior of people. The online behavior of people, in this research referred to as "player behavior", is a topic that many game developers invest in nowadays.

One of these game developers that has taken an interested in player behavior is Hi-Rez Studios. Hi-Rez Studios is the developer of games, such as Global Agenda, Tribes: Ascend, and their biggest success: Smite: Battlegrounds of the Gods. Smite is a game which can be placed in the so called Massive Online Battle Arena (MOBA) genre. MOBA's are a genre of games in which multiple players in a team

fight over several objectives on a map against another team of players. The goal of MOBA games is to win the game through destroying the final line of defense of the enemy team, whilst you are defending your own lines of defense. These games are usually of a competitive nature. In Smite a team consists out of 5 players. These players are randomly matched together to create a team of 5 random individuals (Hirez Maria, 2013b). Due to the competitive nature of Smite these teams of random people are forced to cooperate in order to achieve the common goal of winning the game (Hirez Maria, 2013b).

For player behavior research this setting is interesting, because each match people are put in a team with 4 other players that they usually do not know, have no relationship with, but are forced to cooperate with if they wish to win the game. This means that people who have most likely never met before, have no relationship whatsoever, are anonymous to a certain degree, and will more often than not never be put on the same team again are challenged to work together to beat a common opponent. All of this while being put in a stressful situation in which tensions can run high. These conditions can influence players in such a way that players in a game might start to exhibit unacceptable social behavior (Kelley & Stahelski, 1970; Zastrow, 2008).

Such unacceptable social behavior is, in particular in MOBA's, referred to as "bad mannerism" (BM) or toxic player behavior. In this research the term toxic player behavior will be used, which when reading should be interpreted as all forms of unacceptable behavior by players in online communities. The term toxic player behavior is used because other game developers, such as Riot Games, Blizzard and Robot Entertainment, commonly use this term when speaking about unacceptable social behavior by the players of their games (Lin, Kwoh et al., 2013; Makuch, 2014). The term toxic player behavior was originally coined by an employee of Riot games as they had discovered that unacceptable social behavior in their game tended to spread to other players when they experienced another player exhibiting unacceptable social behavior (Lin, Kwoh et al., 2013). This mechanism has yet to be scientifically proven as research from Lin, Kwoh et al. (2013) has never been published and results have only been made public during conferences. The following example serves as an explanation of how unacceptable social behavior in games has been said to spread: Player A and B get into the same team for a game of Smite. Player A has had a bad day, and gets frustrated and angry with his team when his team isn't performing the way Player A would like to see them perform. So Player A decides to start exhibiting forms of toxic player behavior and scold at his team. At the end of that game Player B has gotten so frustrated with Player A's behavior that when he starts his next game with a completely

different team of players Player B himself starts exhibiting toxic player behavior, and the exact same process of the first game could happen to different players.

Currently, toxic player behavior is often considered a nuisance to gaming community members (Sîrbu, date of publication unknown; McWhertor, 2012; Burnell, 2014). It makes the game less fun for them, and sometimes to such an extent that players do not enjoy the game itself anymore, leading them to stop playing that game (Sîrbu, date of publication unknown; McWhertor, 2012; Burnell, 2014). For game developers this is one of two reasons to invest in researching and combatting toxic player behavior. The community behind games often indicates that they do not appreciate the amount of bad mannerism and toxic player behavior which exists within games (Clariname, 2014; KolyatKrios, 2014; DonPapu5; 2014). By pleasing the community and showing the community the company cares about them, they feel listened to and appreciated, which will entice them to keep playing the game (Jarvis, 2015). On the flipside the reason for the community to demand attention towards combatting toxic player behavior is because, as previously stated, it obscures the ability to enjoy the game and thus to play the game as toxic player behavior is often perceived as cyber bullying by players (Clariname, 2014; KolyatKrios, 2014; DonPapu5; 2014; Kwak, Blakburn, Han, 2015). Toxic player behavior can be perceived as cyber bullying when you are trying your hardest to work as a team and win a game, but another player does everything in his power to prevent you from doing so (Kwak, Blakburn, Han, 2015). All forms of toxic player behavior can take a serious mental toll on the player who is targeted by the toxic player, which is has also been proven to be the case with victims of cyber bullying (Stopbullying.gov). Cyber bullying needs to be taken seriously as it can lead to much bigger problems, such as depression, anxiety, and in extreme cases suicide (Stopbullying.gov).

From a scientific point of view it is interesting to research player behavior in online gaming communities as these communities are new and growing societies which are not limited by physical borders, the purpose of actions is relatively clear, and these actions are quantifiable. On top of that each game usually saves all data on their games and members automatically, meaning that the data which can be used to analyze these new societies are near perfect depending on the nature of the research, as there is objective data on every individual in the entire population. This allows for near perfect validity and near perfect confidence levels of research results. Downsides to researching online gaming communities are that the data is usually not gathered or saved for research purposes and the results cannot be generalized outside of online gaming communities.

This research is commissioned by Hi-Rez Studios and serves as an analysis of their Player Behavior Policy. Within this research the focus will lie on evaluating the effectiveness of Hi-Rez Studios Player Report System within their game called “Smite”. One of Hi-Rez Studios key principles is to achieve the best possible online gaming community for their players to play Smite in. Or in the words of Todd Harris, Hi-Rez Studios’ COO: *"For online games, community is everything. In real life, when people gather in a neighborhood bar, a loud, belligerent blowhard makes you want to leave the bar. So you expect the bouncer to throw him out. He can go to a public park for freedom of expression. On the Internet it's harder to monitor but the goal is the same - a positive community so people want to be there”* (Hi-Rez Studios, 2013b).

To promote a healthy environment for a game, and keep the game appealing to new and existing players it is of importance for Hi-Rez Studios to make Smite as enjoyable as possible for every player (Hi-Rez Studios, 2013b). Hence the goal of this research will be to provide Hi-Rez Studios with recommendations on how to improve their current Player Report System in order to lower the prevalence of toxic player behavior within Smite. To provide Hi-Rez Studios with custom tailored recommendations the following research question has been created: Which factors, which can be influenced by policy, determine the effectiveness of Hi-Rez Studios Player Behavior policy regarding the reduction of toxic player behavior?

The Player Report System is Hi-Rez Studios most important tool in combatting toxic player behavior. In order to provide recommendations on how to improve the current Player Report System it is key that not only the Player Report System’s effectiveness gets evaluated, but also that the mechanisms which underlie the current Player Report System get analyzed as these underlying mechanisms can provide a clear view on where the Player Report System is effective or fails to be effective. To determine the effectiveness of the Player Report System the current effectiveness of the Player Report System will be compared with the desired effectiveness of the Player Report System as stated by Hi-Rez Studios Customer Support Lead Austin Gallman. By doing this it can be determined whether the current Player Report System is doing what it is supposed to do or whether it needs to be adjusted.

Furthermore, to determine the factors, which can be influenced by policy, that determine the effectiveness of Hi-Rez Studios Player Behavior policy regarding the reduction of toxic player behavior, Hi-Rez Studios Player Behavior Policy and all aspects of toxic player behavior within Smite should be

analyzed. Hence, topics in relation to Hi-Rez Studios Player Behavior Policy and aspects of toxic player behavior within Smite will be examined.

First, Hi-Rez Studios current Player Behavior policy shall be examined in order to understand what Hi-Rez Studios current methods regarding the reduction of toxic player behavior and stimulation of positive player behavior are.

After Hi-Rez Studios current Player Behavior policy regarding the reduction of toxic player behavior and stimulation of positive player behavior has been examined Hi-Rez Studios Player Behavior policy shall be compared to the Player Behavior policies of game studios which develop similar games. This comparison will serve two purposes: 1) it will serve as a means to determine how well developed Hi-Rez Studios' Player Behavior policy is in comparison to Player Behavior policy of other game studios who develop similar games, and 2) other game studios' Player Behavior policy can serve as an example for possible recommendations on how to improve Hi-Rez Studios' current Player Report System.

As not only the effectiveness of Hi-Rez Studios' Player Report System, but the mechanisms behind the effectiveness of Hi-Rez Studios' Player Report System will also need to be researched scientific literature will be used to cover the mechanisms that might exist within the Smite's Player Report System. Multiple psychological and sociological behavioral theories and corresponding mechanisms will be explored and the existence of some of these mechanisms within Smite's Player Report System shall be tested. Unfortunately, only a few mechanisms can be tested due to the limitations of the dataset. These limitations stem from the fact that the data was not specifically gathered for the use of this research. The data lend itself well to examine whether the Player Report System is effective or not, but unfortunately can only be used to scratch the surface of the behavioral mechanisms that might underlie toxic player behavior. Regardless, even theories and mechanisms that cannot be tested will be explored as they still contribute to the establishment of a theoretical framework regarding Player Behavior within Smite.

In order to determine whether the Player Report System is effective or not the current effectiveness of the Player Report System shall need to be compared to the desired effectiveness of the Player Report System. Before this comparison can be made the current prevalence of toxic player behavior within Smite shall be examined. After these aspects of toxic player behavior within Smite are explored it is necessary to evaluate the effectiveness of the Player Report System before analyzing which factors determine its effectiveness:

When the effectiveness of the current Player Report System has been analyzed, the factors behind its effectiveness can be analyzed. After the mechanisms which underlie the effectiveness of the Player Report System have been determined recommendations in terms of how to improve the current Player Report System should be able to be provided.

Currently, there is very limited research on player behavior in online games. One of the leading on-going researches on player behavior is that of Lin and Kwoh et al. (2013). This research has gone through several stages in which several topics of player behavior, all with the goal of reducing player toxicity within League of Legends (a MOBA by Riot Games), have been analyzed. The first stage of that research was on the kinds of player behavior that occurred within the game, what accepted player behavior and unacceptable player behavior was, and how Riot Games could govern player behavior. Following stages of that research have mainly focused on which interventions could be used to combat bad mannerism and player toxicity, how these interventions should work, and experiments to test whether these interventions did or did not work (Lin, Kwoh et al., 2013, 2015). This research has yet to be published thus the results are not yet scientifically reliable. The results of this research have been shown publicly at conferences, but the to be published article is still being written.

During part of this research I am doing an internship at Hi-Rez Studios to fully grasp how Hi-Rez Studios player behavior initiatives function, as well as to learn in what way Hi-Rez Studios would prefer to combat toxic player behavior. During this internship it will be needed to work closely with the Customer Support team, Hi-Rez Studios' analysis team, Hi-Rez Studios' community managers, and several of Hi-Rez Studios developers. The knowledge and experience gained from this internship shall be used in this research as well.

In other words: in this research toxic player behavior within Smite will be researched through analyzing Hi-Rez Studios player behavior initiatives and the effectiveness of their Player Report System in an attempt to fully understand which factors, which can be influenced by policy, determine the effectiveness of the Player Report System so that recommendations on how to improve the Player Report System can be provided in order to combat toxic player behavior within Smite.

2. Hi-Rez Studios' Player Behavior Policy

To understand the current state of toxic behavior in Smite a first step is to explore how Hi-Rez Studios currently deals with all player behavior within Smite, to do so five aspects of Hi-Rez Studios' policy on

(toxic) player behavior will be reviewed: 1) Smite's End User License Agreement, 2) Hi-Rez Studios Suspension/Ban Policy, 3) the Player Report System, 4) Deserter status and goodwill, and 5) Mute button, Do not Disturb-mode, and Block button. Smite's End user License Agreement will be discussed to find out whether prior to creating a Smite account a potential player should already be informed on what the rules and regulations are in relation to his/her behavior, and whether the consequences for misbehaving are clear. Hi-Rez Studios Suspension/Ban Policy will be reviewed in order to discover what Hi-Rez Studios regards as unacceptable player behavior which deserves punishment. The Player Report System will be reviewed as it is Hi-Rez Studios' main tool with which toxic player behavior is combatted. The Deserter status and goodwill systems will be examined as those are systems that directly punish a player for exhibiting toxic player behavior, or reward a player for not exhibiting toxic player behavior. Lastly, the Mute button, Do not Disturb-mode, and Block button systems will be reviewed as those enable players to prevent them from being the victim of toxic player behavior.

2.1 Hi-Rez Studios' End User License Agreement

In Smite's End User License Agreement (2013a) there is just one article in which toxic behavior and its consequences are addressed. In article 4, namely subsection d, e, and f, Hi-Rez Studios (2013a) refers to exploiting game mechanics through use of third-party technology, in other words hacking, and how this would result in a warning plus a temporary ban. Every follow-up offense concerning the same topic of offense shall result in a permanent ban from the game. It is interesting that no further mentions towards (toxic) player behavior are made in Smite's End User License Agreement (Hi-Rez Studios, 2013a). A possible reason for this is that Hi-Rez Studios uses an all-encompassing Suspension/Ban Policy rather than a separate ban/suspension policy per game, thus it is assumable that they have different rules per licensed game. It turns out that this is indeed the case, as Hi-Rez Studios Suspension/Ban Policy regards all games created or developed by Hi-Rez Studios (Hi-Rez Studios, 2013b). Having not included any references to (toxic) player behavior in Smite's End User License Agreement can thus be seen as Hi-Rez Studios not seeing (toxic) player behavior as something that could or should halt the service agreement between Hi-Rez Studios and the individual who accepts Smite's terms of service.

2.2 Hi-Rez Studios' Suspension/Ban Policy

Hi-Rez Studios Suspension/Ban Policy (2013b) on the other hand does provide a more in-depth look at what is considered toxic player behavior, and how toxic player behavior is dealt with. As the name of the policy states toxic player behavior is met with either a ban or a suspension from the game in which the player has been showing toxic behavior (Hi-Rez Studios, 2013b). Even though not explicitly

stated in Hi-Rez Studios Suspension/Ban Policy Hi-Rez Studios manages three degrees of offenses which relate to player behavior (Hi-Rez Studios, 2013b). These three degrees of toxic player behavior are based on the severity of punishment which is received after an offense. First degree offenses consist out of: leaving the game, harassment of fellow players, and intentionally dying to the enemy team. First degree offenses are met with temporary suspensions, which scale the more often a player has been suspended before. This scaling of bans is as follows: the first offense results in a 3 day ban, the second offense results in a 7 day ban, the third offense results in a 14 day ban, the fourth offense results in a 30 day ban, the fifth offense results in a 365 day ban (Hi-Rez Studios, 2013b). Second degree offenses consist out of: abusive language that targets race, belief system, sexual orientation, or any specific group of people (Hi-Rez Studios, 2013b). Second degree offenses are met with a suspension which scale the more often a player has received a suspension as a result of a first degree offense, and on top of that the player receives a warning stating that if the player were to commit an offense of a similar degree in the future the player will get banned permanently (Hi-Rez Studios, 2013b). Third degree offenses consist out of: hacking, fraudulent purchases, impersonating a Hi-Rez employee, or targeted death threats. Third degree offenses are met with an immediate permanent ban (Hi-Rez Studios, 2013b). The Suspension/Ban policy is the only policy that Hi-Rez Studios currently only upholds regarding (toxic) player behavior.

2.3 Smite's Player Report System

Smite's Player Report System is the tool which is used for reporting, and combatting toxic player behavior, and consists of two platforms. The first platform of the Player Report System is the in-game report system, and the second platform of the Player Report System is the Hi-Rez Studios Customer Support tool. Smite's Player Report System works as follows: after a game of Smite has been played each player ends up in what is called the end-game lobby. In this lobby an overview of the game is available which includes information about the previously played game, including statistics on each player's individual performance. On top of all the information there are three buttons per player in the game which people can use to either add another player as a friend, block the selected player, or to file a report against a certain player. After an individual has decided to file a report against a certain player all he/ she has to do is press the report button behind the name of the player that the individual wants to report. The player is then required to select a category in which the player's toxic behavior fits best. The three categories that can be selected are: harassment, leaving the game/AFK, and intentional feeding. Harassment means a player has been verbally attacking another player in one way or another, leaving the game/AFK entails that a player has left the game or stopped playing the game prior to the

game ending, and intentional feeding means that a player has intentionally tried to suicide himself so to give the enemy team an advantage. All of these behaviorisms are seen as toxic player behavior, because they give the team that the offending player is in an unfair disadvantage. Harassment does so through demoralizing your team, making them less likely to co-operate, leaving the game/AFK does so as the leaver's team then has a person less on their team which gives the other team an unfair advantage, and intentionally feeding gives the player's enemy team an unfair advantage as they then get extra experience points and gold which they can use in the game to gain a lead. After an individual has reported a player they have the option to type an additional note in regards to the toxic player behavior which was experienced. These notes can be reviewed by the support team and are meant to provide a more accurate description of how the reported player has been acting throughout the game. Finally, players have to hit the send button after which the report gets filed.

After a report has been filed the reports get send to a database which is solely accessible by Hi-Rez Studios personnel. The support team is then in charge to process these reports for which they can use a Customer Support tool. Within the Player Report System's Customer Support tool admins are provided with a descending list of the top 250 players who have at least 15 reports against them in the last 7 days. Each of the players in this top 250 is seen as a "case". When accessing one of these player report cases the admin get send to a different page on which every statistic in regards to the reports of the selected player are available. They can then select certain matches in which these players have been reported to see for what offense they have been reported that game, as well as what kind of notes were supplied by the reporting player. However the Customer Support team does lack access to the actual footage of the game. To assess whether an offense has been committed the admin then moves on to different web portal in the Customer Support team tool to find evidence to support certain reports. Most evidence is found in the chat logs of each individual game. After trying to gather evidence the member of the support team then decides whether he has enough evidence to ban or suspend the reported player. If enough evidence is found the player will be given a fitting punishment, and if not the case is marked as reviewed. After suspending/banning or reviewing a case the case is removed from the top 250 players list.

2.4 Deserter status and goodwill

Currently often overlooked by the Smite community are two other behavior initiatives in Smite called "deserter" and "goodwill" (Hi-Rez Studios, 2014). Deserter is a status in the game which will temporarily deny you from entering into any new matches (Hi-Rez Studios, 2014). A player gains a

deserter status when he either doesn't accept to go into a match after the queue has ended, a player leaves the match in the match lobby, or the player leaves a match prior to the match ending and doesn't return to the match before the match ends (Hi-Rez Studios, 2014). The deserter system works as follows: when you desert a match a 24 hour clock is started. Each time you have gained the deserter status the clock starts over (Hi-Rez Studios, 2014). There is no difference from leaving a match lobby versus leaving a match in progress. The first time you desert you get a 30 minute ban from rejoining queues, the second time you get a 60 minute ban, the third time you gain a 120 minute ban, and the fourth time is above 4 hours (Hi-Rez Studios, 2014). You must not have gained deserter status for at least 24 hours to have your deserter count reset to zero (Hi-Rez Studios, 2014). Finally, deserting league matches, which functions much like a ladder system in regular sports, always count as a loss which means a player will also lose some ladder points (Hi-Rez Sock, 2014). This system is applied to Smite to prevent players from needlessly having to wait in queue for a long time without getting a proper match, and to quickly punish players who either abandon a match prior to it starting or after it has started.

On top of acquiring the deserter status players will also lose their goodwill. The goodwill system works as follows: within Smite a player can attain goodwill by completing games without showing signs of toxic behavior. Players are granted 6% of goodwill up to 100% after every match (Smite.gamepedia.com, 2015). Goodwill increases the total favor gained for completing a match (Smite.gamepedia.com, 2015). Favor is an in-game currency with which new Gods can be unlocked or alternative skin colors for each God can be bought (Smite.gamepedia.com, 2015). Goodwill will reset after being punished for toxic behavior (Smite.gamepedia.com, 2015). As Smite.gamepedia.com states (2015): "*The Goodwill system is used to stimulate players to refrain from toxic behavior and to play according to the community's code of conduct*".

2.5 Mute Button, Do Not Disturb-mode, and Block Button

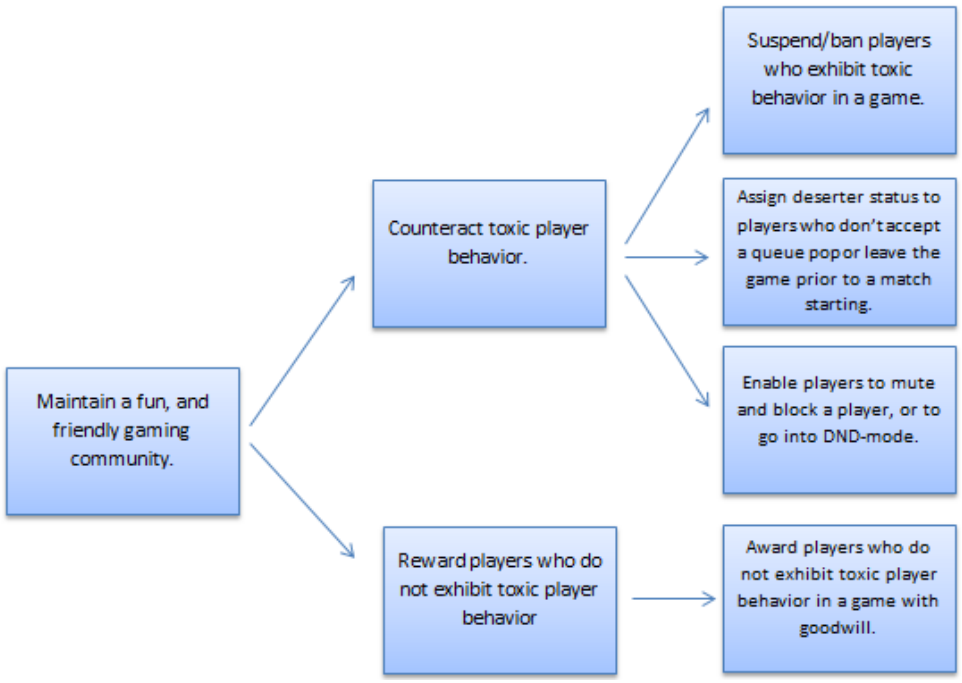
Much of the toxic behavior that player's show are exhibited through the chat mechanisms in the game there are several options that Hi-Rez Studios arm players with to stop this harassment (Hi-Rez Studios, 2013c). Hi-Rez Studios states that "*one of the best ways to combat harassment is to simple ignore the player*" (2013c). As it can be hard to plainly ignore what a person is typing, while still reading the chat to detect viable game information Smite features a mute button, a do not disturb-mode (DND-mode), and a block button (Hi-Rez Studios, 2013c). The mute button will prevent a player from detecting any form of communication from the player they have muted for the rest of the game, and can only be used while in a game (Hi-Rez Studios, 2013c). The DND-mode is a bit more severe as it prevents any

player from privately sending you messages while this mode is turned on, this counts for both in- as well as outside of a game (Hi-Rez Studios, 2013c). Furthermore, Smite has an implemented “block system” (Hi-Rez Studios, 2013c). This button allows for one player to effectively deny any communication from another player (Hi-Rez Studios, 2013c). The block button effectively blocks any private messages, clan invites, and party invites that the blocked player might want to send (Hi-Rez Studios, 2013c). The mute button, DND-mode, and block button do not proactively combat toxic player behavior, but they do arm players with ways to protect themselves if and when they experience toxic player behavior.

2.6 Summary

After reviewing Hi-Rez Studios’ current policy in regards to (toxic) player behavior there are several points to be summarized. 1) To play Smite an individual does not need to be aware of what is considered (toxic) player behavior aside from that hacking and exploiting mechanics by using third-party technology are not allowed. 2) Hi-Rez Studios’ Suspension/Ban Policy is a document in which Hi-Rez Studios more clearly states what is considered as toxic player behavior and how they deal with toxic player behavior. 3) Hi-Rez Studios’ Suspension/Ban Policy is an optional read to individuals. 4) Some offenses are regarded as more severe than others and repercussions are more severe dependent on the severity of the offense. 5) Hi-Rez Studios’ Support team only reviews cases that have been submitted by their player community. Hence, Hi-Rez Studios is dependent on their player community in order to combat toxic player behavior in Smite. 6) Hi-Rez Studios’ Support team has access to almost every statistic surrounding the games in which a player was reported, but lacks the ability to review the gameplay footage of that match. 7) Less severe, but easier to hand out, punishments are given through the deserter status system. 8) Players are rewarded for properly completing games through the goodwill system. 9) Players have the ability to protect themselves from exhibitions of toxic player behavior through the mute and block button, or DND-mode. In conclusion, Hi-Rez Studios’ policy in regards to player behavior currently focuses on punishing toxic player behavior, and rewarding players who abide by the community’s code of conduct through goodwill, but does not reward positive player behavior.

Figure 1 Concluding policy theory



3. Player Behavior Policy of Other Games

As Smite is not the only game with a large community in which toxic player behavior is seen as a hindrance, examining policy on player behavior of other MOBA's should give an insight into what other game studios do to counteract toxic player behavior and stimulate positive player behavior. Examining other game studios' Player Behavior policies can help establish how well developed Hi-Rez Studios' Player Behavior policy is and can help in providing suitable recommendations on how to counteract toxic player behavior and stimulate positive player behavior in Smite (Riot Games, date of publication unknown – c; Sillis, 2015). As I expect that games which are similar in nature to Smite will have the most similar toxic player behavior situations, only MOBA games will be reviewed on their Player Behavior policy. These Player Behavior policies will be compared to Hi-Rez Studios Player Behavior policy with the aim of finding possibilities to improve Hi-Rez Studios Player Behavior policy. Currently, the four most well-known MOBA games are: Dota 2, League of Legends (LoL), Heroes of the Storm (HotS) and Smite. Unfortunately, Dota 2's policy on combatting toxic player behavior and stimulating positive player behavior cannot be included as Dota 2 does not have any written explanation of their policy. League of Legends was reviewed as LoL has done extensive research in terms of player behavior, and as a result have multiple player behavior initiatives which are meant to combat toxic player behavior and stimulate

positive player behavior (Lin, 2015). Heroes of the Storm, on the other hand, has been reviewed as it is a fairly new MOBA that has already taken an interest into implementing several player behavior initiatives that they consider to fit their specific game and therefore HotS Player Behavior policy can serve as an example of a newly developed Player Behavior policy (Sillis, 2015).

As previously mentioned Hi-Rez Studios' policy on (toxic) player behavior consists out of 5 aspects: 1) Hi-Rez Studios' terms of service, 2) Hi-Rez Studios' Suspension/Ban Policy, 3) the player report system, the 4) Deserter status and goodwill system, and 5) the Mute button, DND-mode, and Block button. Most of these aspects of Hi-Rez Studios' policy on (toxic) player behavior can also be found in both Riot Games' League of Legends and Blizzard Entertainment's Heroes of the Storm policy on (toxic) player behavior.

3.1 Similar Player Behavior Initiatives

Both other MOBA games use a Player Report System which functions similarly to Smite's Player Report System. The main difference being that the LoL and HotS Player Report Systems have more categories of standardized reasons to choose from. HotS' Player Report System is different in the sense that players never end up in a post-game chat so instead players get the option to report another player while in a game. Furthermore, HotS' Player Report System's categories of toxic behavior differ from Smite's Player Report System toxic behavior categories. HotS toxic behavior categories are: "Spam", "Harassment", "Real-life Threat", "Inappropriate Name", and "Cheating". Note, some categories of toxic behavior are not included in HotS' Player Report System, but are included in Smite's Player Report System. This implies that certain kinds of toxic behavior, such as intentional feeding and leaving a game (AFK), do not occur within HotS. An explanation for this could be that HotS has different game mechanics which deteriorate the effect of intentional feeding (the team that is behind gets more experience from kills than the team that is ahead) and leaving the game (AFK) (if a player leaves the game that player's character shall then be controlled become computer controlled) (Spyrian, 2014b). Currently, both what gets done with player reports after they have been filed, and how player reports contribute to the suspension/ban of players who exhibit toxic behavior in HotS is unknown.

Figure 2 HotS Player Report System Categories

LoL's Player Report System does not only have more categories of toxic player behavior to choose from, but also supplies sub categories to choose from. These (sub)categories are: "Harassment: Offensive Language", "Harassment: Verbal Abuse", "Grieving: Intentional Feeding", "Grieving: Assisting Enemy Team", "Refusing to Communicate with Team", "Leaving the game/AFK", "Negative Attitude", "Inappropriate Name", "Spamming", and finally "Unskilled Player" (Riot Games Support, 2015; Picture of Horse, 2014a). All of these categories are related to toxic player behavior, aside from the "Unskilled Player" category. The latter shows that the game's matchmaking mechanics are not optimal, so when a player is reported for being an unskilled player this report does not contribute to the possibility of getting suspended/banned (Picture of Horse, 2014-a). The big difference here is that LoL's Player Report System toxic behavior sub-categories allow for a more precise idea of why a player has been reported and what kind of toxic behavior that player has been exhibiting. This could assist whoever is responsible for reviewing player cases in knowing what kind of signs of behavior he/she is looking for while reviewing the games in which the player has been reported.

After player reports in LoL have been filed they are stored in each player's case file. Unlike in Smite where Hi-Rez Studios' admins review the player cases, most player cases in LoL get reviewed by members of the LoL community who are at least level 20 and not sitting out a punishment (Nancymon, 2014a). The system in which players review other player's cases is called the 'Tribunal". It should also be noted that not every case gets reviewed through the Tribunal system; instead the more severe cases get reviewed by either Player Support teams or Player Behavior Specialists (Lin, 2012b). Within the Tribunal Tribunal judges review select cases of players with a high number of reports. A high number of reports is used as an indicator for consistent negative behavior over a large number of games (Nancymon, 2014a). Tribunal judges can review the same data within LoL that admins within Smite can use to review their player cases (Lin, 2012a; Nancymon, 2014a). After a case has been reviewed the Tribunal judges can either vote for a suitable punishment or pardon the case (Nancymon, 2014a). When a judge cannot come to a conclusion he/she can skip the case (Nancymon, 2014a). After all judges have voted the player whose case got reviewed will automatically be punished or pardoned dependent on the votes (Nancymon, 2014a). If a player has been punished he/she will, on top of receiving a suspension/ban, lose all his/her honor points, which is a system akin to Smite's goodwill system (Riot Games, date of publication unknown-a). After a case is closed all judges as well as the reviewed player can view a "reform card" on which the result of the vote and how unanimous the result was can be seen (Nancymon, 2014a).

Similar to Hi-Rez Studios End User License Agreement Blizzard Entertainment has their "Battle.net End User License Agreement", and League of Legends has their "Terms of Use Agreement". Blizzard Entertainment's "Battle.net End User License Agreement" and LoL's "Terms of Use Agreement" function in exactly the same way as Hi-Rez Studios End User License Agreement. All three state that cheating and using third-party software can be reasons for terminating the End User License Agreement. Unlike Hi-Rez Studios End User License Agreement and Suspension/Ban Policy, which are two separate documents, Battle.net states that their Code of Conduct is incorporated in their "Battle.net End User License Agreement", while LoL's "Terms of Use Agreement" directly includes their Code of Conduct (Hi-Rez Studios, 2013a; Battle.net, 2014; League of Legends, 2014).

Both Battle.net's Code of Conduct and LoL's Code of Conduct function in a same way as Hi-Rez Studios' Suspension/Ban Policy functions. They all address what is considered to be toxic player behavior and how players who exhibit toxic player behavior will be dealt with (Hi-Rez Studios, 2013b; Battle.net, date of publication unknown; League of Legends, 2014). Both Battle.net's Code of Conduct and LoL's Code of Conduct are more elaborate in explaining what they regard as toxic player behavior than Hi-Rez Studios' Suspension/Ban policy (Battle.net, date of publication unknown; League of Legends, 2014). The big difference between these three documents is that Hi-Rez Studios' Suspension/Ban policy also includes an explanation of their suspension/ban system, while neither of the other companies' Code of Conducts do this (Hi-Rez Studios, 2013b; Battle.net, date of publication unknown; League of Legends, 2014). Note, LoL's suspension/ban system is explained in the Tribunal FAQ (Nancymon, 2014a). Since Battle.net's and LoL's Code of Conduct are incorporated/included in the End User License Agreement and Terms of Use Agreement players are expected to be aware of what unacceptable behavior is before playing the game, which is different from Hi-Rez Studios' Suspension/Ban policy which players have to actively seek out to educate themselves on what is considered to be unacceptable behavior by Hi-Rez Studios (Hi-Rez Studios, 2013a; Hi-Rez Studios, 2013b; Battle.net, date of publication unknown; League of Legends, 2014).

Another player behavior initiative that both Smite and LoL share is the "deserter status" or as LoL calls it: "LeaverBuster". The LeaverBuster is similar to the deserter status as it punishes those players who do not accept a match queue, leave a match prior to the match starting, or leave the match while the match is on-going (Picture of Horse, 2014b). Riot Games and Hi-Rez Studios treat queue dodging fairly similar with the only difference being that League of Legends makes a distinction in queue penalty

severity depending on the game mode, while Smite takes into account whether a person has decided to queue dodge in the last 24 (or sometimes more) hours (Picture of Horse, 2014b; Hi-Rez Studios, 2015).

Lastly, Smite, LoL, and HotS share ways for players to protect themselves against toxic behavior from other players through the "mute" button (Hi-Rez Studios, 2013c; League of Legends, date of publication unknown; Sillis, 2015; Trikslyr, 2015a). Both Smite and LoL also feature a block button, but HotS currently lacks a similar button (Hi-Rez Studios, 2013c; League of Legends, date of publication unknown). Smite also provides players with a DnD-mode, which hasn't been implemented in either LoL or HotS, and thus Smite provides its players with more ways to protect themselves against toxic player behavior than the other games do (Hi-Rez Studios, 2013c; League of Legends, date of publication unknown; Sillis, 2015; Trikslyr, 2015a).

3.2 Different player behavior initiatives

There are several player behavior initiatives that LoL and HotS have implemented and which Smite has not. A quick overview, explanation, and some pros and cons of these initiatives shall be provided.

To start off, in addition to their Code of Conduct League of Legends has the so called "Summoner's Code" (Riot Games, date of publication unknown - a). Where LoL's Code of Conduct states what is considered to be toxic behavior, the "Summoner's Code" states what is considered to be acceptable player behavior (Riot Games, date of publication unknown - a). In other words the "Summoner's Code" is a collection of the norms and values within League of Legends. The goal of the Summoner's Code is not necessarily to dictate how players should behave within League of Legends, but to give players an example of what is considered positive behavior (Nancymon, 2014a). The aim of the Summoner's Code is that by acting in concordance with League of Legends' Summoner's Code players should have a better experience in the game, while at the same time creating a better experience for other players (Nancymon, 2014a). The pro of having norms and values stated in a document is that a certain document could serve as social facts if these norms and values were set up in collaboration with the player community (Durkheim, Solovay, Mueller, 1950). If these norms and values would serve as social facts players would regulate player behavior within the game themselves, rather than admins having to enforce rules on player behavior (Durkheim, Solovay, Mueller, 1950). Further, Caldine et al. (1990) categorized norms into two different groups: descriptive and injunctive norms. With descriptive norms being regularities of behavior, and injunctive norms being behavioral expectations that are enforced by social or material sanctions (Simpson & Willer, 2015). Both descriptive and injunctive norms

play different roles in influencing social behavior. Research has shown that descriptive norms could evoke more prosocial behavior. Schultz et al. (2007) found that when other group members were made aware of typical in-group behavior they would assimilate, and adjust their behavior according to the descriptive norms. Injunctive norms also influenced social behavior, and were found to be most effective when the sanctions applied to already existing descriptive norms (Schultz et al., 2007).

Furthermore, League of Legends has a behavior initiative called "Ranked Restrictions". This player behavior initiative works as follows: "*when a player meets the minimum threshold for number of reports and confirmed chat offenses in any game mode the ranked queue will be locked for that player. After winning several normal games without offenses they are able to play ranked games again"* (Nancymon, 2014b). This limits toxic players in playing the competitive side of LoL which can be a big hindrance if a player plays the game to improve (Nancymon, 2014b). On top of that certain rewards can only be unlocked by getting to a certain position on the ranked ladder while showing sportsmanship in these games (Nancymon, 2014b). The pro of having a "Ranked Restriction" system is that the players who are serious about becoming a better player also have to become good sports, which could possibly create an interdependent relationship between being a good player and acting sportsmanlike. A possible downside is that the toxic player behavior of the more competitive players and the players who want to unlock the rewards may increase after they get a ranked restriction as they might consider their goal to be either unachievable or far less achievable from that point forward (Simpson & Willer, 2015).

HotS developers have mentioned that they are planning to implement a player behavior initiative which they describe as "low priority queues" (Sillis, 2015). These "low priority queues" are queues in which a player ends up after consistently having exhibited toxic player behavior (Sillis, 2015). Low priority queues consist solely out of players who have repeatedly exhibited toxic behavior so only toxic players get matched and play the game with other toxic players (Sillis, 2015). This should isolate toxic behaving players from the neutral and positive behaving players. A pro of this system is that the regular and positive behaving players will most likely only experience minor or lesser exhibitions of toxic behavior thus making the game more enjoyable for them. Cons are that a system like this does not actually combat toxic player behavior in the sense that it does not teach players what is acceptable and unacceptable player behavior. It doesn't give players who have exhibited toxic player behavior the opportunity to alter their behavioral patterns. Instead it just isolates players who consistently exhibit toxic player behavior so the non-toxic players do not get affected by it. In worst case scenarios it can be

expected that borderline cases turn into actual toxic players after they have gotten themselves into the low priority queues due to them learning that toxic player behavior is the norm.

League of Legends also has a player behavior initiative called “Restricted Chat Mode”. Restricted Chat mode will limit the number of messages a player can send while in-game and is activated when the game detects signs of toxic behavior (Chipteck, 2014). If a player who is in restricted chat mode exhibits neutral or positive player behavior during games he/she unlocks additional chat messages (Chipteck, 2014). In order to completely remove restricted chat a player is required to play a certain number of games without exhibiting toxic behavior (Chipteck, 2014).Note that aside from chat messages League of Legends implements an alternative feature to the chat with which players can communicate necessary in-game information to team mates, so not being able to communicate through chat should not deteriorate a player’s chance to win (Chipteck, 2014). From this we can derive that the “Restricted Chat Mode” is solely used to prevent players from harassing the other players in the game. The pro of this kind of player behavior initiative is that it is a quick and easy way to reduce toxic player behavior in games, due to limiting the amount of toxic behavior a player can exhibit. A con, on the other hand, is that this is a very light form of punishment which might not be enough of a punishment for players who have exhibited toxic behavior to realize that they need to alter their behavior (Skinner, 1981; Vonk, 2009).

Furthermore, League of Legends has a system called “Behavior Alerts”. This is an automated system which alerts a player if the player has been showing signs of toxic behavior. This player behavior initiative is implemented to prevent a significant number of players from ever being punished by Riot Games’ player behavior systems (Psyche, 2014). Even though Riot Games has established that over 92% of all players are neutral or positive they implemented the “Behavior Alert” initiative as their previous research has shown that neutral and positive players can be frustrated or upset for any reason and can behave toxically on occasion as a result of their emotional state (Psyche, 2014). A warning from the “Behavior Alerts” system should then function as a wakeup call to guide these generally neutral and positive players away from toxic player behavior (Psyche, 2014). The “Behavior Alerts” will solely trigger when a player has received valid reports from other players that he was behaving toxically (Psyche, 2014). A pro of this system is that it does not actually punish people, but instead corrects them. On top of that this system enables players to be corrected right after they have been reported, which could make it more likely for players to connect their behavior to the warning (Gazzaniga, Heatherton & Halpern, 2009). This could in turn result to players realizing what they have done wrong which allows

them to adjust their behavior accordingly. At the same time this is not really a punishment, but should still make people aware that the behavior they exhibited was unacceptable. This system does not have a con in regards to regulating toxic player behavior.

Lastly, as a way to promote positive play League of Legends has the "Honor System" and Heroes of the Storm is looking to implement an "individual Rating System" (Sillis, 2015; Trikslyr, 2015a; Trikslyr, 2015b). Not much is known about the "individual Rating System" that Blizzard Entertainment wishes to implement in Heroes of the Storm other than that it is supposed to stimulate positive player behavior (Sillis, 2015). League of Legends "Honor System" focuses on positive player behavior through allowing players to reward other players with "Honor Points" in the post-game chat (Miss Mecha Zero, 2014). These "Honor Points" are meant to be rewarded to players that have done everything to make another player's game experience better (Riot Games, date of publication unknown - b). In other words "Honor Points" are spent to show appreciation for the sportsmanship that another player has exhibited. The system works much like the Player Report System: in the post-game lobby you can select to honor a player by clicking the reward button, you then get several categories from which you can choose to define what kind of positive player behavior that player has exhibited. These categories are as follows: Helpful", "Friendly", "Teamwork", and "Honorable Opponent" (Riot Games, date of publication unknown – b). The number of "Honor Points" a player is rewarded depends on the player rewarding them. Every player has a limited number of "Honor Points" that he/she can distribute, and the number of "Honor Points" players reward is dependent on how often a player rewards others with "Honor Points". The number of "Honor Points" that you reward is higher the less often a player rewards others with "Honor Points" (Miss Mecha Zero, 2015). "Honor Points" function as an indicator of how sportsmanlike a player is. "Honor Points" decay over time, so to be seen as an honorable player a player needs to consistently exhibit sportsmanlike behavior (Riot Games, date of publication unknown - b). After having been rewarded a certain number of honor points players can unlock small rewards which are visible on your game statistics page as well as in the match lobby, and in the loading screen. (Riot Games, date of publication unknown - b). Possible pros of an "Honor System" is that the focus in terms of player behavior shifts from only focusing on combatting toxic player behavior to also rewarding positive player behavior. Therefore showing the community that exhibiting positive player behavior is just as important as combatting toxic player behavior in order to create a fun and friendly online gaming community. This could possibly switch the focus of player behavior in a game from looking at what other people are doing wrong to looking at what other people are doing right. Cons to this kind of system is that chances are it might not make a difference, or that it will take a long time before a switch in player

behavior is achieved while the development of such a system can be expected to be a long and expensive process.

There is one player behavior initiative that isn't officially stated as a player behavior initiative on the Riot Games website, but has been referred to in Riot Games articles: "Rewards for positive play" (Lin, 2014c). "Rewards for positive play" is a player behavior system in which "*players who have not been chat restricted or had their account suspended*" will receive surprise rewards (Lin, 2015). The reason they are called surprise rewards is because there are no set dates after which players will be rewarded for their positive player behavior. The idea behind this is to positively reinforce positive player behavior through an expected frequency of a reinforcing event, in other words: a reward (Lin, 2015). These rewards are to be unrelated to specific activities or durations, as such a system would reward people for only temporarily being positive instead of exhibiting consistent positive player behavior (Lin, 2015). This should not affect players who are already regularly positive as they would just receive a surprise reward for their behavior. Instead it focuses on the negative and neutral players through trying to encourage them to exhibit positive behavior for which they would get a small in-game reward in return (Lin, 2015). A pro of a similar system is that for players who occasionally exhibit toxic behavior the prospect of a possible reward may be compelling enough to refrain themselves from exhibiting toxic player behavior. This could result in making the neutral player base more positive. A con of a certain system is that dependent on how big the "neutral" behaving player base is the investment in terms of rewards might not be worth the results which can be achieved.

4. Policy theory

The next step is to evaluate which mechanisms underlie Hi-Rez Studios' player behavior policy. It should be noted that these underlying mechanisms will be derived from the policy itself, meaning that the to be discussed mechanisms are nowhere explicitly stated as being the mechanisms on which the policy is based. Instead, the mechanisms which will be discussed are mechanisms which I think supposedly underlie Hi-Rez Studios current Player Behavior policy. These mechanisms will mostly be discussed in relation to seeing whether current policy can be considered effective at combatting toxic player behavior and stimulating positive player behavior.

Hi-Rez Studios current policy in regards to player behavior focuses on punishing players who exhibit toxic player behavior, while rewarding players who do not exhibit toxic player behavior (Hi-Rez Studios, 2013a; Hi-Rez Studios, 2013b; Hi-Rez Studios, 2013c; Hi-Rez Studios, 2014). Furthermore, Hi-Rez

Studios punishment system focuses on increasing severity of punishment per offense made (Hi-Rez Studios, 2013b). Considering this system it is safe to assume that Hi-Rez Studios believes that a player can learn and adjust their behavior after having been punished for their previous behavior. This assumption can be plausible as every player gets multiple opportunities to adjust their behavior after having dealt with the consequences for their past behavior. In example, if player A uses foul language in multiple games, gets reported for this behavior by multiple players in those games, and gets punished by one of the admins based on those reviewed reports then player A deals with the temporary consequences of his behavior after which player A gets to play several games of Smite again. If player A then exhibits the same kinds of behavior, and goes through the same process he will receive a more severe punishment than before, unless he adjusts his behavior after his first offense after which he will not get reported and gets to enjoy playing the game. So Hi-Rez Studios' current policy on player behavior focuses on the mechanism of learning through punishment in which a reaction, learning, is provoked after a stimulus, punishment, has been applied as a result of a previous action, exhibiting toxic player behavior. In the literature, this mechanism is referred to as operant conditioning (Gazzaniga, Heatherton & Halpern, 2009).

Operant conditioning occurs when we learn that a certain behavior leads to a particular outcome (Gazzaniga, Heatherton & Halpern, 2009). Operant conditioning is a form of learning new behavior with a focus on reinforcing or punishing behavior which is respectively considered to be desired or undesired behavior in order for the individual to learn the desired behavior (Skinner, 1981). By either reinforcing or punishing behavior an individual is supposed to learn whether the exhibited behavior is wanted or unwanted (Skinner, 1981). When looking at operant conditioning in regards to Hi-Rez Studios Smite related player behavior policy the following mechanism can be deduced: Hi-Rez Studios is trying to alter toxic player behavior, undesired behavior, through suspending or banning, in other words punishing, players who have been reported as exhibiting toxic player behavior. Through temporarily withholding a player to play Smite, that player is then to learn that if he wants to be able to play the game he/she needs to alter his behavior.

Additionally, whether a player decides to change his/her behavior is partially determined by rational choice theory. Rational choice theory states that: "*individuals are seen as motivated by the wants or goals that express their preferences*" (Scott, 2000). Individuals act within a framework that is determined by the limitations of the information that they have about the conditions under which an individual is acting (Coleman & Fararo, 1992; Scott, 2000). As individuals use rational choice to

determine the best course of action in order to attain the goals through the means that they have, individuals must anticipate the outcomes of all their options and weigh the benefits against the costs of these options. Individuals will choose the outcome which is likely to give them to greatest satisfaction (Coleman & Fararo, 1992; Scott, 2000).

This translates to the Player Report System in such a way that when players have been suspended they will have to decide whether or not the benefits of changing their behavior outweighs the costs of changing their behavior. As most players want to be able to enjoy the game without interruption this can be seen as their goal or their preference. The cost of exhibiting toxic player behavior is running the risk to get suspended, which would get in the way of obtaining their goal. Although, the cost of altering their behavior is that a player will not get to vent their emotions in a similar fashion in the future.

Whether a player has altered his/her behavior because of receiving a suspension can be determined through the number of reports that the player has received per week prior to as well as after his/her suspension. To test whether the Player Report System has been effective in altering a player's behavior on the basis of operant conditioning and rational choice theory the following hypotheses can then be formulated:

- H1: If a player has gotten suspended the number of reports per week that have been filed against a player after his/her suspension should be lower than the number of reports per week that have been filed against a player prior to his/her suspension.

As there was no data available for this research on how many games a player had played per week prior to and after their suspension(s) it is possible that the number of games a player played per week prior to their suspension differs from the number of games a player played per week after their suspension. Therefore the number of opportunities that a player has had to exhibit toxic player behavior and to get reported prior to and after their suspension can differ. Due to the data a change in playing behavior cannot be accounted for, thus the assumption is made that the amount of games a player has played per week prior to as well as after his/her suspension remained the same.

Unfortunately, the dataset also does not include the date on which the player accounts were created therefore it is impossible to measure the complete period of time over which a player has had the opportunity to have a report filed against them. To estimate this period of time as accurately as

possible the first date available, which is the date on which the first report was filed against a player, shall be taken as the starting point of the period of time over which a player could have gotten reported. In order to justify taking the date the first report was filed against a player as the starting date of the period of time in which a player could have gotten reported the assumption is made that all players have gotten their first report filed against them on the day they played their first game of Smite.

If the results show that the number of reports per week that have been filed against a player after his/her suspension were equal or higher than the number of reports per week that have been filed against a player prior to his/her suspension then there could be three mechanisms that would cause players to not alter their behavior: the time in between the exhibition of unacceptable behavior and punishment, the process of unlearning what acceptable behavior is, and the severity of third party punishment. Unfortunately due to the limitations of the dataset it cannot be tested whether these mechanisms exist within the Smite Player Report System. However, since these mechanisms help shape the framework of possible mechanisms underlying toxic player behavior these mechanisms will be explored.

There are several side notes that need to be made in regards to learning new behavior through operant conditioning, namely that learning new behaviors depends on the contiguity of the stimuli, and that extinction of the learned behavior occurs when the conditioned stimulus no longer predicts the unconditioned stimulus (Gazzaniga, Heatherton & Halpern, 2009). In the case of Hi-Rez Studios Suspension/Ban Policy this would mean that a suspension/ban should occur shortly after toxic player behavior is exhibited by a player. Currently, there is a certain number of reports necessary for a player to get on the list of top 250 most reported players in the last 7 days, after which it takes some more time for the admins to review a player's case. The time in between the exhibition of toxic player behavior and a suspension/ban as a result of that behavior might be too long for a player to link the punishment to the crime, which would mean that if this mechanism would exist within the Player Report System the longer the time in between the exhibition of toxic player behavior by a player and the suspension, the more likely that player is to get suspended/banned in the future.

Were it that a player did get suspended/banned quick enough for him/her to link his/her toxic behavior with his/her punishment and adjust his/her behavior to it in the future then it is safe to assume that a player should not get suspended/banned again. Although, if a player gets suspended/banned a first time, adjusts his/her behavior, but then relapses into his/her old behavior and would not get suspended/banned for this behavior he/she could unlearn that his/her recently learned behavior is

desired (Gazzaniga, Heatherton & Halpern, 2009). This mechanism could be the case within Smite as admins do not have the tools to directly punish those who exhibit toxic player behavior and have to rely on reports by other players in order to detect toxic player behavior. Meaning admins cannot instantly respond to a relapsing player to help adjust his/her behavior. If this mechanism would exist within Smite this would be noticeable through an increasing amount of time in between suspensions/bans.

As previously stated the Player Report System is highly dependent on the participation of Smite's community members as it functions through players reporting other players if those other players have exhibited forms of toxic player behavior (Hi-Rez Studios, 2013a; Hi-Rez Studios, 2013b; Hi-Rez Studios, 2013c; Hi-Rez Studios, 2014). As players play their game of Smite they can either decide to exhibit acceptable behavior or to exhibit toxic behavior. In an ideal situation every player in a game would exhibit acceptable behavior. However, if a player does exhibit toxic behavior other players can decide to report him, which could possibly lead to a suspension or ban (Hi-Rez Studios, 2013a; Hi-Rez Studios, 2013b; Hi-Rez Studios, 2013c; Hi-Rez Studios, 2014).

Through experimental research Fehr and Gächter (2000) found that actors in a system in which they could not get punished by group members for not behaving cooperatively tended to largely base their actions on self-interest as time progressed. However, when actors could get punished by group members for not behaving cooperatively research found that actors would behave more cooperatively as time progressed (Fehr & Gächter, 2000; Anderson & Putterman 2006; Ostrom et al., 1992). The reason why actors act differently in a system with versus a system without punishment possibilities is because of a principal called "strong reciprocity" (Fehr & Gintis, 2007; Fehr & Fischbacher, 2003; Gintis et. al, 2003). As Fehr and Gintis (2007) state: "*Strong reciprocity is a behavioral propensity to cooperate conditionally on other group members' cooperation and to punish the violations of social norms even though this is costly for the punisher and causes him or her an economic net loss"*. This means that in a system in which actors are able to get punished their behavior is not solely determined by self-interest but by conditional cooperation and punishment motives as well (Fehr & Gintis, 2007).

The existence of strong reciprocity within a person is dependent on multiple forces, with reciprocal fairness and inequity aversion being the most prominent ones (Rabin, 1993; Falk & Fischbacher, 2006; Fehr & Schmidt, 1999; Fehr & Gintis, 2007). An actor who acts reciprocally fair will respond to kind acts with kindness, and to hostile acts with hostility (Fehr & Gintis, 2007). In other words, reciprocal fair subjects respond in a similar fashion of that of the original act (Fehr & Gintis, 2007). Even so, reciprocally fair actors will not always punish unfair behavior. They value reciprocal

fairness in addition to their self-interest, meaning that if the costs outweigh the benefits of acting reciprocally fair, then they are less likely to act reciprocally fair (Carpenter, 2007).

In a system with direct punishment possibilities in which both reciprocal fair actors, those who respond to kind acts with kindness and to hostile acts with hostility, and self-regarding actors exist all actors would work cooperatively (Falk & Fischbacher, 2006). The reason behind this is that reciprocal fair actors wish to act cooperatively as long as most others act cooperatively, and self-regarding actors will act cooperatively if the benefits outweigh the costs of acting cooperatively (Falk & Fischbacher, 2006). In a direct punishment system the sheer fact that a self-regarding actor may get punished by strong reciprocal actors for acting non-cooperative is enough of an economic incentive to ensure that self-regarding actors act cooperatively (Falk & Fischbacher, 2006). In turn, strong reciprocal actors will also act cooperatively as they do not have to fear that other actors may act non-cooperatively. Thus due to the existence of direct punishment possibilities strong reciprocal actors induce self-regarding actors to cooperate (Falk & Fischbacher, 2006; Fehr & Gintis, 2007). On the other hand, in a system without direct punishment possibilities none of the actors would cooperate (Falk & Fischbacher, 2006). Initially strong reciprocal actors would act cooperatively, but they would quickly learn that self-regarding actors are not acting cooperatively. As strong reciprocal actors would not have a possibility to directly punish the self-regarding actors for acting non-cooperatively the only means for them to stop the self-regarding actors from (unfairly) free-riding on the strong reciprocal actors cooperativeness is by not acting cooperative anymore. Therefore due to self-regarding actors acting non-cooperatively and there being no means for the reciprocal strong actors to punish the act of free-riding, reciprocal strong actors would act non-cooperatively in order to stop the self-regarding actors from free riding (Falk & Fischbacher, 2006).

Smite's Player Report System allows cooperative players, those who exhibit non-toxic player behavior, to report non-cooperative players, those who exhibit toxic player behavior. However, the act of reporting is not a means of direct punishment as reporting another player does not need to result in punishment of the reported player. Therefore, it is likely that self-regarding players do not perceive the possibility of being reported as a way of getting punished for their toxic player behavior, and are thus not likely to exhibit acceptable player behavior. Nevertheless, as reports can possibly lead to punishment, reports cannot be disregarded completely as an economic incentive for self-regarding players to exhibit acceptable behavior.

There are more factors to be considered when reviewing the norm enforcement measures within Smite. Thus far, all research that has been examined was done in groups in which the group composition remained the same over the course of the experiments. Within Smite the group composition changes after every game, and players are fairly unlikely to encounter each other again. Thus even if a player decides to report a player who has exhibited toxic player behavior and the player who exhibited toxic player behavior gets suspended, the player who filed a report will most likely not benefit off of filing a report against the player who exhibited toxic player behavior. Not being able to reap the benefits of filing a report against a player who has exhibited toxic player behavior might possibly be enough of an incentive to not file a report against a player who has exhibited toxic player behavior. Therefore, norm enforcement research regarding anonymous actors should also be examined.

To discover whether strangers behave in a similar fashion as members of a group in which the composition is consistent Fehr & Gächter (2000, 2002) conducted experiments in which group members would only encounter each other once, after which the group composition randomly changed. In these experiments a punisher could not reap the benefits of future cooperation of the punished free rider as the punisher would never be in the same group as the punished free rider again (Fehr & Gächter 2000, 2002). These experiments showed that even in a "stranger" setting the punishment pattern would remain the same, suggesting that the majority of punishment choices are driven by other-regarding motives. For Smite this could mean that even though players are not able to reap the benefits of reporting another player, they should in theory still report a player if that player exhibits toxic player behavior.

Still, this does not cover Smite's Player Report System's bases completely. In Smite the task to punish players who exhibit toxic player behavior is not reserved for the players, but for Hi-Rez Studios' Customer Support team. This means that forms of direct punishment are missing, and that punishment is instead enforced by a third-party, while simultaneously being driven by the community members through the report system. The most similar situation to the Player Report System in terms of punishment that has been researched is that of third party punishment. Thus, examining literature on third-party punishment systems can give a clearer view of the punishment system within Smite.

As the name suggests there are three parties in a third party punishment system: the first party – the norm violating party, the second party – the violated party, and the third party – an uninvolved outside party who happens to know that the norm violation occurred (Fehr & Fischbacher, 2004). Within Smite the first party would be a player that exhibits toxic player behavior, the second party would be

another player who would be affected by the exhibited toxic player behavior or the player who files a report against the player who exhibited toxic behavior, and the third party would be the admins of the Customer Support team who review the player cases. Fehr and Fischbacher (2004) researched which mechanisms drove third parties to punish norm violations by comparing the results of experiments in a third party punishment system to those of experiments in a second party punishment system . They introduced a third party punishment possibility into both a dictator game, and a prisoners' dilemma game. As the prisoners' dilemma game experiment is most similar to situations which can occur in Smite, players can either decide to cooperate – exhibit neutral or positive player behavior – or defect – exhibit toxic player behavior- within a game, only the results from Fehr and Fischbacher (2004) prisoners' dilemma game regarding third party punishment will be taken into account. Note that Fehr and Fischbacher (2004) third party punishment system in their prisoners' dilemma game functions differently than Smite's Player Report System as, in the experiment it was costly for the third party to punish while punishing within Smite is not costly for the Customer Support team. The results indicated that second party punishment was more severe than third party punishment, but that third party punishment still enforced cooperation even though this was detrimental to the payoff of the third party punishers and the third party punishers were unable to reap benefit from their sanctions (Fehr & Fischbacher, 2004). Furthermore, the results indicated that due to the more severe punishment of second parties a single punishment by a second party sufficed in rendering norm violations unprofitable whereas a single third party punishment could not render norm violations unprofitable (Fehr & Fischbacher, 2004).

Currently, Smite's Player Report System is a third party punishment system with a pre-determined severity of punishment which is elaborated on in the Hi-Rez Studios Suspension/Ban Policy (2013b). Therefore, changing the current Smite Player Report System from a third party punishment system to a second party punishment system should not change whether players alter their behavior, as the severity of the punishment would not change. Furthermore, the Suspension/Ban Policy has been created by Hi-Rez Studios personnel and has thus been created by a third party (Hi-Rez Studios, 2013b; Fehr & Fischbacher, 2004). Meaning that the current punishment severity, which is based on what a third party thought would be severe enough punishment, in itself could be too light. In other words, as Hi-Rez Studios Suspension/Ban policy has been created by a third party, the severity of the suspensions could be lacking due to the generally less severe nature of third party punishment (Fehr & Fischbacher, 2004). If this mechanism would exist within the Player Report System, this could indicate that a more severe punishment is necessary in order to alter a player's behavior.

An invaluable part of Hi-Rez Studios' current Player Report System with which they try to combat toxic player behavior is the reports which are filed by the players. As previously discussed the reports that a player files against another player when the latter player has exhibited toxic player behavior get compiled into what can be considered a "player case". If enough reports are accumulated in a case, this case will get reviewed by an admin. If the admin considers these reports to be valid, meaning the player against which the reports are filed has indeed exhibited toxic player behavior to such an extent that the admin regards it as punishable, that player will receive a suspension/ban. Currently, Hi-Rez Studios attempts to disregard invalid reports by having the admins only review the player cases that have had the most reports in the last 7 days. Hi-Rez Studios thus assumes that a high number of reports equals a higher chance that the player against which the reports have been filed has exhibited toxic player behavior. This assumption is based on the idea that all reports filed by players are only filed when another player has exhibited toxic player behavior.

To determine whether this assumption made by Hi-Rez Studios is true I will analyze whether the reports influence whether a player will get suspended or banned. In other words to determine whether the number of reports filed against a player indicates whether a player has exhibited toxic player behavior, I will analyze whether the number of reports influence whether a player gets suspended/banned. Hence, the following hypothesis has been created:

- H2: The higher the number of reports that have been filed against a player, the more likely that player is to have exhibited toxic player behavior, thus the more likely that player is to have been suspended/banned.

Kelley and Stahelski (1970) researched the effect of competitive behavior within cooperative groups. They found that when a competitive player joins a cooperative group, the cooperative players start exhibiting competitive behavior, the competitive players regards the previous cooperative players as always having been competitive players, and lastly the former cooperative players are aware that their competitive behavior is largely a consequence of the new player's competitiveness (Kelley & Stahelski, 1970). Zastrow (2008) further explains that cooperation within groups increases creativity, coordination of effort, division of labor, cooperative attitudes and values, positive self-attitudes, divergent thinking, and most importantly problem-solving skills. When individual's personal goals are perceived to be compatible, identical, or complementary this results in a cooperative atmosphere (Zastrow, 2008). A competitive atmosphere on the other hand is usually destructive, and exists when group members

regard their personal goals to be incompatible, different, conflicting or mutually exclusive (Zastrow, 2008). Furthermore, a competitive atmosphere within a team can have negative consequences, such as ineffective communication, suspicion and mistrust, negative self-attitudes, and negative attitudes towards the group goals that need to be achieved (Zastrow, 2008).

Within Smite there are several game modes players can play (HiRez Maria, 2013a). A distinction is made between casual game modes, and the more serious game modes (HiRez Maria, 2013a). These more serious game modes are the Conquest mode, and the league Conquest mode (Hirez Maria, 2013a). Within these latter game modes it is key to cooperate as a team in order to achieve the goal of winning the game (Hirez Maria, 2013a). Generally the community regards the Conquest modes as the more difficult game mode in the game, as an abundance of knowledge of the game is required in order to play the Conquest modes (Hirez Maria, 2013a; Clariname, 2014; DonPapu5, 2014; Natdaprat, 2014). Because of the higher difficulty of the Conquest modes the players who play Conquest most regularly are considered to be more serious and more competitive in regards to the game (Clariname, 2014; KolyatKrios, 2014; DonPapu5; 2014). Coincidentally, these more serious and competitive players are expected to play the game the most as well. Mainly, because the goal of these players is to become better at Smite's Conquest mode, and therefore practice this mode as much as they can (DoctorJjaja18, 2014). Furthermore, the general consensus within the Smite community is that players in Conquest mode are more likely to be toxic than players in the other game modes (Clariname, 2014; DonPapu5, 2014; Natdaprat, 2014). The reason for this is that those players who play the Conquest modes are considered to be the most serious about the game, they want to grow as players, and are considered to play the most out of all players. In other words, their competitive drive is greater than those of players who mainly play the other game modes (DoctorJjaja18, 2014).

What this means for the atmosphere in Conquest modes is that due to the competitive drive of the Conquest players, their goal to become the best through practicing the game as much as possible, and the competitive aspect of the Conquest modes a very competitive atmosphere is apparent within these Conquest games. On the other hand the Conquest mode itself requires for players to cooperate as that is the sole way to reach the common goal within the game, which is to win the game (HiRez Maria, 2013a). The contradiction of competitive players playing a game mode which requires you to cooperate can create friction within the teams in a game. On the basis of the research of Kelley and Stahelski (1970), and Zastrow (2008) it is safe to assume that when players enter a Conquest game with the wish to cooperate, but with a competitive mindset, the competitive mindset of players will take over and

create a competitive atmosphere. Since a competitive atmosphere has a very destructive nature, and often has negative consequences toxic player behavior can be considered to be a logical result of the competitive atmosphere in a game (Zastrow, 2008). This amount of toxic player behavior within Conquest games is considered to be a barrier for newer players to try out the Conquest modes (Clariname, 2014; KolyatKrios, 2014; DonPapu5; 2014).

As the Conquest game mode is the number one game mode that Hi-Rez Studios promotes within Smite and the fact that newer players regard the expectation of higher levels of toxic player behavior within the Conquest modes as a reason not to play the Conquest mode it is interesting to study whether the more serious players actually do exhibit toxic player behavior more. As the dataset does not include the game modes which the players have played, but does include the number of games a player has played the assumption has been made that the more serious players play more games than the casual players. Therefore the following hypothesis has been created to test whether the more serious/competitive players exhibit more toxic player behavior than casual players:

- H3: The more games a player has played, the more likely he/she is to exhibit toxic player behavior.

Conquest modes have an average duration of 30 minutes (HiRez Maria, 2013b). This is twice the length of the more casual game modes. Therefore a player who has played a large number of games does not necessarily have to be a serious/competitive player. To make sure that we analyze whether serious/Conquest mode players exhibit more toxic player behavior than casual players the effect of the number of hours per game that a player has spent playing Smite on whether a player has exhibited toxic player behavior will also get analyzed. To make sure we analyze whether the Conquest mode players exhibit more toxic player behavior than casual players the following hypothesis has been created:

- H4: The higher the number of hours per game a player has played Smite, the more likely that player is to have exhibited toxic player behavior.

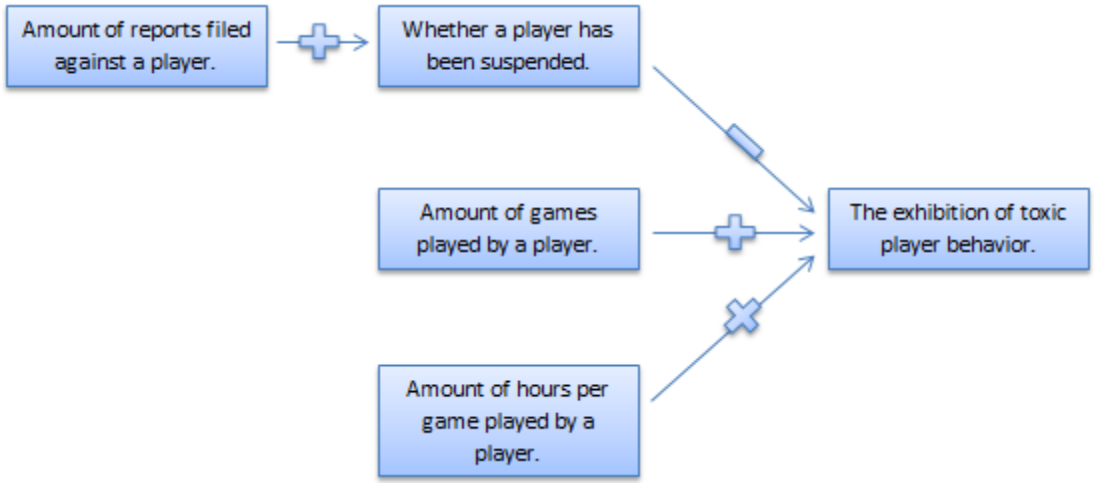
Furthermore, the amount of toxic player behavior within Conquest games can lead to players who are new to the Conquest mode to exhibit toxic player behavior as well, even though most players are most likely opposed to exhibiting toxic player behavior (Willer et al., 2009). The mechanism behind this is that new players who start playing the Conquest mode will notice the toxic player behavior that other players are exhibiting and perceive this behavior to be the norm. As these new players want to

assimilate themselves within the group of Conquest players they will start exhibiting toxic player behavior in an attempt to conform to the perceived norm within this new group even though individually they believe toxic player behavior to be unacceptable (Willer et al., 2009). After conforming to the norm of toxic behavior this unwanted norm has to sustain before it can actually be perceived as the norm for future players (Willer et al., 2009). Unwanted norms sustain when members conform the newer/future members regardless of whether their individual beliefs deviate from the norm. Due to assimilation into the newly chosen group, group members will enforce toxic player behavior as they wish to proof that their conviction is genuine (Willer et al., 2009). This process is a prime example of a false enforcement process which is in part responsible for the sustained existence of unwanted norms (Centola et al., 2005; Willer et al., 2009). A different process behind the exhibition of toxic player behavior within Smite as a result of being exposed to other players' exhibitions of toxic player behavior is that witnessing other players pursue their own self-interest, which results in non-cooperative – toxic player – behavior, at the cost of other players may lead the other players to think that egoism within Smite is the norm (Falk & Szech, 2013; Simpson & Willer, 2015). Unfortunately, it is also not possible to research whether the process of false enforcement exists within Smite due to the limitations of the dataset.

A schematic overview of the combination of these hypotheses that lead to four different factors that play a role in determining whether toxic player behavior is exhibited is shown in figure 3.

It is noticeable that the hypotheses to evaluate the effectiveness are all related to the Player Report System instead of the full spectrum of Hi-Rez Studios' Player Behavior Initiatives. The reason for this is that current data in regards to the deserter status and goodwill systems is unavailable, and for this research only data on the Player Report System is available. Due to the limitations of the data I have had to limit myself in my hypotheses as well. To assure that every aspect of player behavior within Smite does get observed I will highlight several theories in regards to those aspects in the recommendations sector of this research, which can in turn serve as a basis for future research.

Figure 3 Conceptual Framework



5. Research design

In this part of the study the research design, which consists of the way data has been collected and the way the data will be analyzed, as well as the research method are discussed. The analysis is done by focusing on the research goal: to provide Hi-Rez Studios with recommendations on how to improve their current Player Report System in order to lower the prevalence of toxic player behavior within Smite. These recommendations shall be made on the basis of an evaluation of the effectiveness of the Player Report System and of the mechanisms which underlie the Player Report System. Judging by this goal it can be deducted that the nature of this research is an effect evaluation, as Hi-Rez Studios current policy will be evaluated on how effectively it has fulfilled its purpose.

The purpose of Hi-Rez Studios player behavior policy can be deducted from Hi-Rez Studios Suspension/Ban Policy (2013), which states that the purpose of their Player Behavior policy is to "*to maintain a fun, friendly in-game community*". As it is hard to define what a "*fun, friendly in-game community*" is this research will base the effectiveness of the current player behavior policy on a statement by Hi-Rez Studios Customer Support Lead Austin Gallman: *"The "perfect" scenario would be punishing every player that meets our requirements for a suspension, but realistically I would consider it effective if we are punishing over 50% of the players that have done something that we consider bad behavior"*. This statement will be used as the desired effectiveness of the Player Report System, which will be compared to the current effectiveness of the Player Report System. If the current Player Report System turns out to punish less than 50% of the players that have exhibited suspension worthy toxic

player behavior the player report system will be deemed ineffective, if the current Player Report System turns out to punish 50% or more of the players that have exhibited suspension worthy toxic player behavior the Player Report System will be deemed effective.

6. Data collection and data-analysis

To analyze the effectiveness of the Player Report System and the mechanisms behind its effectiveness a dataset was used which was collected with the help of Hi-Rez Studios. Hi-Rez Studios automatically saves almost all details on the players and the games of Smite those players played. This data is automatically updated and overwritten with every released patch. Patches release every, or every other, week, and only the most recent data on the players get saved. Due to data being overwritten and compiled after every patch only the data on the last point of measurement, the latest patch, are available. Even though several dates are stored in Hi-Rez Studios systems not all of them are combined in the same dataset. Therefore only limited dates could be combined into this research's dataset. These dates were: the dates reports were filed against a player, and the date(s) of suspension(s). With over 2.5 million active players there are millions of games that are played each day (Smite Guru, 2015). As this was the first study of its kind and how the effectiveness of the evaluation of the Player Report System needed to be explored, here, I have opted to take a representation of that dataset by randomly taking 1000 players and all their respective data. It should be noted that only 13 out of these 1000 players have been suspended before. I would have preferred to have had more players who had gotten suspended at least once in my dataset, as that would have increased the statistical significance of my dataset (Field, 2009). Unfortunately it was only discovered that the population of players who had at least been suspended once was this small when I had started to analyze the data, at which Hi-Rez Studios was unable to supply me with a new dataset. The current dataset consists out of the players' account id, the total number of hours a player played Smite, the total number of games of Smite played by a player, the total number of times a player has been reported, the number of times a player has been suspended, the date and time on which a player has been reported, the reason why a player was reported, the standardized reason for why a player has been reported, and whether a report has led to a suspension/ban. Note that as the dataset contains all reports that were filed against the players in the dataset the number of reports in the dataset are far greater than the number of players in the dataset (n = 31692). Furthermore, Smite has had the same Player Report System ever since the "closed beta" state of the game thus the dataset includes data on the Player Report System ranging from 2012 to 2015. The data gathered includes players from level 1 to level 30, data on games from every game mode, and data

on both league and normal games. No distinction has been made on all those aspects during data gathering, as this research is used to evaluate the effectiveness of the Player Report System and its underlying mechanisms within Smite as a whole. This dataset shall be used to analyze both the effectiveness of the current Player Report System as well as the mechanisms which underlie the effectiveness of the current Player Report System.

In order to determine whether the Player Report System is effective or not the current effectiveness of the Player Report System shall be compared to the desired effectiveness of the Player Report System. Due to using a quantitative dataset I am unable to detect whether a player has actually exhibited toxic player behavior, as admins determine whether a player has exhibited toxic player behavior through reviewing the chat logs. For determining the effectiveness of the Player Report System the number of players who have exhibited suspension worthy toxic player behavior and got suspended for it have to be compared with the number of players who have exhibited suspension worthy toxic player behavior but have not gotten suspended. To that end a new variable is created to determine whether a player has exhibited toxic player behavior. This variable is the report probability, and is calculated by dividing the total number of reports filed against a player through the total number of games that player has played. As a player can be reported multiple times in one game this variable will not show the number of reports received per game, but instead it will show what the probability is for a player to get reported in their next game.

To determine whether a player has exhibited suspension worthy toxic player behavior a benchmark on the basis of the report probability will be set. This benchmark will be based on the minimum value of the report probability for suspended players in the dataset used for this research. This benchmark has been chosen as the minimum value of the report probability for suspended players should indicate what the minimum report probability is to get suspended/banned by an admin, thus indicating whether a player is likely to have exhibited toxic player behavior. The reason for choosing the report probability over the number of times a player has been suspended is because the report probability can include those cases in which a player has exhibited suspension worthy toxic player behavior but has not been suspended for his behavior. Hence, the report probability is a better indicator to measure player behavior than the number of times a player has been suspended. To correctly evaluate whether the Player Report System is effective the benchmark has will be set 0.5% beneath the minimum report probability to get suspended/banned of the suspended players in the dataset in order to include borderline cases. This method and benchmark have been created with the help of and are

approved by Hi-Rez Studios' Customer Support Lead Austin Gallman. As can be seen in Table 1 when filtering out people who have never been suspended, leaving the 13 players who have been suspended, data shows that the minimum report probability of the suspended players is 7.6%, hence the benchmark to determine whether a player has exhibited suspension worthy toxic player behavior shall be set to 7.1%. Note that players can get suspended multiple times. In this dataset there were 13 players who have gotten suspended. Out of these 13 players nine players were suspended only once, two were suspended only twice, and the remaining two players were suspended only three times. Meaning there were a total of 19 suspensions in this dataset.

Table 1 Mean, Standard Deviation, Range, and the Interquartile Range of the Report Probability of Suspended Players

Variable	M	SD	Range	Interquartile Range	N
Report Probability	.148	.042	.076 - .209	.124 - .185	13

In order to provide recommendations on how to improve the current Player Report System it is key that not only the Player Report System's effectiveness gets evaluated, but also that the underlying mechanisms of the current Player Report System get analyzed as these underlying mechanisms can provide a clear view on where the Player Report System is effective or fails to be effective. For hypothesis 1 we want to determine whether the mean of the reports per week filed against players who got suspended prior to their suspension differs from the mean of the reports per week filed against players who got suspended after their suspension. A Shapiro-Wilk test shall be done to determine whether the variables are normally distributed. Due to the small data size of the number of suspensions I assume that it is likely that the dataset is not normally distributed. The Shapiro-Wilk test has been chosen over the Kolmogorov-Smirnov test as the total number of suspensions is rather small (n=19). Depending on whether the variables are normally distributed or not the correct test will be performed: if the variables are normally distributed a paired sample t-test will be performed, and otherwise a paired sample Wilcoxon Signed Rank test will be performed. Both tests can be used to determine whether one population mean differs from the other population mean, in which the paired samples Wilcoxon Signed Rank test is the non-parametric equivalent of the paired samples t-test (Field, 2009; Lowry, 2012; Grotenhuis & Visscher, 2009).

For the other hypotheses the sample size is large enough to justify regression analyses (Field, 2009). Hence, for hypotheses 3 and 4 a linear regression analysis will be used to determine the direct effect of respectively the number of games played by a player on report probability of a player, and the number of hours per game spent playing Smite on the report probability of a player. Since whether a player has been suspended or banned is a dichotomous variable and hypothesis 2 concerns a direct effect of the number of reports filed against a player on whether a player has been suspended/banned a logistic regression shall be used to test this hypothesis (Field, 2009). Before doing so a separate Pearson correlation will be run to detect multicollinearity between the number of reports that were filed against a player and whether a player has been suspended. If the correlation is higher than 0.9 a side note will need to be made that the created logistic regression model could lack statistical power due to estimates being unstable (Frost, 2013; The University of Sydney, 2010).

In table 2 the means, standard deviations, and the range of all (in)dependent variables are presented. The interquartile range, the difference between q3 and q1, is included as the quartiles are less sensitive to extreme values in a sample than the ordinary sample range. In our case however those outliers might be of interest as being the players that exhibit the most toxic player behavior.

Table 2 Means, Standard Deviations, Range, and Interquartile Range of the (in)dependent variables.

Variables	M	SD	Range	Interquartile Range	N
Suspension	.013	.113	0 - 1	.000 - .000	1000
Report Probability	.045	.046	0 - .43	.014 - .061	1000
Total Hours Played	200	278	4 - 3116	28 – 258.5	1000
Total Matches Played	601	809	10 - 9251	90 – 802.75	1000
Times Reported	32	63.8	0 - 700	2 – 35	1000
Times Suspended	.02	.186	0 – 3	.000 - .000	1000
Standardized Reason	1.30	.937	0 – 3	n.a.	31692
Multiple Suspensions	.00	.063	0 – 1	.000 - .000	1000
Reports Per Week Prior to Suspension	6.87	5.28	1 – 21	3.05 – 8.54	19
Reports Per Week After Suspension	7.84	5.82	.82 - 21	2.73 – 12.34	19

7. Results

As stated before a paired sampled Wilcoxon Signed Rank test, a logistic regression, and two linear regression analyses were run. For each regression analyses, both the logistic as well as the linear ones, two models have been used, one in which solely the effect of the control variable (account id) on the dependent variable has been tested, and one in which the effect of both the control variable and the independent variable has been tested. The variable account id was used as a control variable, as the account id indicates how old a player's account is, and therefore how long a player has been able to play Smite meaning the more opportunities a player has had to establish himself/herself as a member of the Smite community. Thus the account id indicates whether a player has been able to adjust his/her behavior to that of acceptable social behavior within the Smite community. The older the account the lower their account id number. The dataset did not need to be filtered as there were no reasons as to

why cases could not be included, due to the automated collection of the data, hence the number of players used in the analysis equaled n = 1000, the number of reports used in the analyses equaled n = 31692, and the total number of suspensions equaled n = 19.

7.1 How prevalent is toxic player behavior within Smite

Before analyzing the effectiveness of the current Player Report System and its underlying mechanisms it was important to make an analysis of the prevalence of toxic player behavior in Smite. Assessing the prevalence of toxic player behavior in Smite should give an idea of how many players are likely to have exhibited toxic player behavior, and should be taken action against. To assess how many players have exhibited toxic player behavior a comparison of the report probability and the report probability benchmark has been made. This comparison shows that 80.1% of the players have a report probability lower than 7.1%, while 19.9% of the players have a report probability of 7.1% or higher. Note that these 19.9% of the players include the 13 players who have been suspended for toxic player behavior. The results thus show that 19.9% of the players are likely to have exhibited suspension worthy toxic player behavior; hence the prevalence of toxic player behavior within Smite is 19.9%. This means that almost one-fifth of Smite's player base can be considered to be toxic players.

These players who have not been suspended, but have exhibited suspension worthy toxic player behavior have most likely not been suspended for their behavior as their cases have never been reviewed. The latter is a result of the way the current Player Report System works, in which only the cases of the 250 most reported players in the past 7 days are reviewable for admins. This list, as stated previously, does renew itself so there are always 250 player cases to get reviewed. Although, from my own experience with the Player Support System Support team tool you generally only review the top 20 players per person per day. With over 2.5 million Smite players the number of cases that need to be reviewed is far larger than the number of cases that the Customer Support team is able to review (Smite.guru, 2015). Especially when you take into account that there currently are six employees who review player report cases on the Customer Support team. These six people all spend on average 3 to 4 hours a day on reviewing these cases, with a case taking in between 1 to 5 minutes to review. If we assume that each employee spends 4 hours a day reviewing player cases, and the average case taking 2.5 minutes to review then the total number of cases reviewed per year equals 210240. The results showed that 19.9% of the players had exhibited suspension worthy toxic player behavior and Smite Guru (2015) states that there currently are 2.5 million active Smite players, that would mean that in a year the Customer Support team would need to suspend 497500 players. In short, currently the number

of cases that get reviewed is far smaller than the number of cases that need to be reviewed by the Customer Support team.

Furthermore, it is interesting to investigate the nature of this toxic player behavior to determine what the most prevalent form of toxic player behavior within Smite is in order to determine whether certain player behavior initiatives need to focus on eliminating a specific kind of toxic player behavior. The nature of toxic player behavior can be determined by looking at the standardized reasons of filed reports. These show that 24.8% of the filed reports state that a player was harassing their teammates, 29.6% of the filed reports state that a player was intentionally feeding, 36.9% of the filed reports state that a player left the match prematurely, and 8.7% of the filed reports state that the player exhibited "other" forms of toxic player behavior. These results show that players report other players for leaving a match prematurely or intentionally feeding more often than they report them for harassment or "other" toxic player behavior. A logical explanation for this result could be that players from both teams can usually notice when a player either leaves a match prematurely, steps away from his/her keyboard, or intentionally feeds the other team, while only players from the same team can experience the harassing behavior of a player as harassing players is done through the in-game chat systems with which a player can solely communicate with his/her teammates. Hence, it is more likely that enemy players will report a player who leaves a match prematurely or intentionally feeds the enemy team than a player who harasses his teammates. Whether this is actually true cannot be tested in this research due to the limitations of the current dataset.

7.2 Effectiveness of the Player Report System

As the prevalence of toxic player behavior in Smite is now known, the effectiveness of the Player Report System can be analyzed. As the results have shown 19.9% of the players in Smite can be considered to have exhibited toxic player behavior for which they could and should be suspended/banned. Currently, only 1.3% of the players in the data set have been suspended/banned as a result of their behavior (table 1). Meaning the Player Report System punishes approximately 6.53% of the players who have exhibited suspension worthy toxic player behavior.

As stated by Customer Support Lead Austin Gallman the Player Report System can be considered effective when the Customer Support team would be punishing over 50% of the players that have exhibited suspension worthy toxic behavior. With the Customer Support Team only punishing 6.53% of the players that have exhibited suspension worthy toxic behavior the Player Report System can be deemed heavily ineffective. These results show that the Player Report System and the Customer

Support team need to be 7.66 times as effective to achieve the desired effectiveness of the Player Report System.

7.3 Underlying mechanisms

Now the Player Report System is deemed ineffective it is important to understand which parts of the Player Report System are (in)effective so recommendations can be tailored to the mechanisms that underlie the Player Report System. To do so several hypotheses need to be tested:

- H1: If a player has gotten suspended the number of reports filed against a player per week after his/her suspension should be lower than the number of reports filed against a player per week prior to his/her suspension.
- H2: The higher the number of reports that have been filed against a player, the more likely that player is to have exhibited toxic player behavior, thus the more likely that player is to have been suspended/banned.
- H3: The more games a player has played, the more likely that player is to exhibit toxic player behavior.
- H4: The higher the number of hours per game a player has played Smite, the more likely that player is to exhibit toxic player behavior.

Before it was determined whether the mean of the number of reports filed against a player per week after that player has gotten suspended differs from the mean of the number of reports filed against a player per week prior to that player's suspension a Shapiro-Wilk test was done to determine whether the variables are normally distributed. The Shapiro-Wilk test (Table 3 in Appendix 1) showed that the number of reports filed against a player per week prior to their suspension is not normally distributed, while the number of reports filed against a player per week after their suspension is normally distributed (respectively: $W = 0.879$, $p < 0.05$; $W = .923$, $p = 0.128$). Meaning a paired sample Wilcoxon Signed Rank Test was used to determine whether the number of reports filed against a player per week were lower after their suspension than prior to their suspension. A paired sample Wilcoxon Signed Rank Test indicated that the number of reports filed against a player per week after their suspension, Mn. 12.88, was statistically insignificantly higher than reports filed against a player per week prior to a player's suspension, Mn. 7.91 ($Z = -.322$, $p = 0.748$).

In table 4, 5 and 6 the results of the statistical analyses have been summarized. A logistic regression analysis (Table 5 in Appendix 1) was conducted to predict whether a player would get banned for 1000

players using the number of reports filed against a player as a predictor. A test of the full model against a model consisting of the constant and the control variable account id was statistically significant, indicating that the number of reports filed against a player reliably distinguished between players who got banned and players who didn't get banned (Chi square = 62.894, $p < .001$ with df = 2). Nagelkerke's R Square of .471 indicated a moderate relationship between prediction and grouping. Considering Nagelkerke's R Square was .032 for the model consisting of the constant and control variable it can be concluded that the full model has a far stronger relationship between prediction and grouping than the constant and control variable model does.

Prediction success overall of the full model was 98.9% (99.7% for not getting suspended and 38.5% for getting suspended). The prediction success overall of the constant and control variable model was 98.7 (100% for not getting suspended and 0% for getting suspended). When the two models are put in comparison the full model was only able to achieve a 0.2% greater overall success prediction, but a 38.5% greater success prediction for getting suspended. This means that even though a small increase in overall success prediction, where there wasn't much room for greater success prediction, the full model seems to have a far greater success prediction for getting suspended. The Wald criterion demonstrated that the number of reports filed against a player made a significant contribution to prediction ($p < .001$). The Exp(B) value indicates that when the number of reports filed against a player is raised by one unit (one report) the odds ratio is 1.01 times as large and therefore players are 1.01 times more likely to get suspended.

The regression analysis which was run to determine the effect of the number of games played by a player on the report probability of a player showed that the number of games played by a player explains 2% of the variance of the report probability (Table 4 in Appendix 1), this is a 1.6% increase in variance explanation compared to the model only including the account id. Furthermore, it showed that there was a significant positive relation (Table 4 in Appendix 1: B= $7.912 * 10^{-6}$, $p < .001$) between the number of games played by a player and the report probability.

The regression analysis which was run to determine the effect of the number of hours per game a player has played Smite on the likeliness that a player has exhibited toxic player behavior, measured through the report probability, showed that the number of hours per game a player has played Smite explains 3.8% of the variance of the likeliness that a player has exhibited toxic player behavior (Table 6 in Appendix 1), this is a 3.4% increase in variance explanation compared to the model only including the account id. Furthermore, it showed that there was a significant positive relation (Table 6 in Appendix 1:

B = .196, p < .001) between the number of hours per game a player has played Smite and the likeliness that a player has exhibited toxic player behavior.

Summarizing, the results were in concordance with hypothesis 2, 3, and 4 which respectively state that the higher the number of reports filed against a player, the more likely a player is to have been suspended; the more games a player has played the more likely the player is to exhibit toxic player behavior; and the higher the number of hours per game a player has played Smite, the more likely that player is to exhibit toxic player behavior. For hypotheses 2 it was most notable that the model which included the number of reports could predict whether a player would get banned for 38.5% more than the model which did not include the number of reports. For hypothesis 3 and 4 it was most notable that the games of Smite a player has played as well as the more hours per game a player has played Smite had a statistically significant positive effect on the report probability. Hypothesis 1 which states that if a player has gotten suspended the number of reports filed against a player per week after his/her suspension should be lower than the number of reports filed against a player per week prior to his/her suspension has to be rejected as the results were statistically insignificant. The insignificant result is due to the small number of suspensions, n = 19. Disregarding the insignificant effect the results did show that the number of reports filed against a player per week were higher post suspension than prior to the suspension, so even though it cannot be concluded whether players do or do not get fewer reports filed against them per week after they have been suspended, the results indicate that players would not receive fewer reports filed against them per week after they have been suspended. Whether players actually do not get fewer reports filed against them per week after their suspension will need to get tested with a larger dataset.

Summarizing, this means for the policy theory that the Player Report System is ineffective in punishing at least 50% of the players that have exhibited suspension worthy toxic player behavior as they only punish 6.53% of the players who have exhibited suspension worthy toxic player behavior. The behavior for which players got reported from most reports to least reports were leaving the game, intentionally feeding, harassment, and lastly “other”. Also, the reports that are filed against players can be considered to be an indicator of whether a player has exhibited toxic player behavior, meaning that basing suspensions on the number of filed reports could be an effective method of suspending players. Furthermore, there is an indication that the Player Report System is ineffective in altering players’ behavior, as the results showed that players did not get a lower number of reports filed against them per week after they were suspended in comparison to the number of reports filed against them per

week prior to their suspension. Lastly, the results showed that both the number of games a player has played Smite and the number of hours per game a player has played Smite had a positive effect on the report probability. This can lead to believe that the more competitive/serious players do exhibit more toxic player behavior than the casual players.

8. Discussion

One of Hi-Rez Studios' key principles is to provide a healthy and friendly online gaming environment for their Smite players. They have realized that in order to achieve a healthy and friendly online gaming environment they need to reduce the amount of toxic player behavior. In order to do this Hi-Rez Studios has a Player Behavior policy. Currently, Hi-Rez Studios' Player Behavior policy consists out of several player behavior initiatives that Hi-Rez Studios has implemented in Smite in order to reduce the prevalence of toxic player behavior within Smite. In order to achieve a healthy and friendly online gaming environment Hi-Rez Studios has commissioned me to provide them with custom tailored recommendations on how to improve their current player behavior initiatives as well as to recommend possible new player behavior initiatives. As the Player Report System is currently Smite's largest player behavior initiative the focus of this research has been to evaluate which factors, which can be influenced by policy, determine the effectiveness of Hi-Rez Studios Player Behavior policy regarding the reduction of toxic player behavior. In order to determine this Hi-Rez Studios current player behavior initiatives were reviewed, the effectiveness of the Player Report System was evaluated, and the mechanisms that underlie the Player Report system were analyzed to determine where the Player Report System is (in)effective.

This research showed that the current Player Report System was ineffective in suspending the desired percentage of players that had exhibited suspension worthy toxic player behavior. This means that the prevalence of toxic player behavior within Smite is still too high according to the standards set by the Customer Support team. In order to reach the desired effectiveness of the Player Report System more players who have exhibited suspension worthy toxic player behavior need to be suspended, and the amount of toxic player behavior that is exhibited within Smite needs to be reduced. This can be achieved through preventing players from exhibiting toxic player behavior on the one hand, and having the Customer Support team review more player cases on the other hand.

Furthermore, this research showed that the number of reports that were filed against players can be considered to be an indicator for whether a player has exhibited toxic player behavior, meaning

that basing suspensions on the number of filed reports could be an effective method of suspending players. Therefore the way the Player Report System admin tool functions has been proven to be effective. This research has been inconclusive on whether the Player Report System is effective in altering the behavior of those players who have been suspended, and in order to research this a larger dataset is required. Lastly, this research showed that the more competitive/serious players are more likely to exhibit toxic player behavior than the more casual players.

Concluding, this means that the factors, which can be influenced by policy, that determine the effectiveness of Hi-Rez Studios Player Behavior policy regarding the reduction of toxic player behavior are the number of cases that are reviewed, the amount of toxic player behavior that is exhibited and reported, the number of reports that are filed against players who exhibit toxic player behavior, the number of games of Smite a player has played, and the number of hours per game a player has played Smite.

When reviewing policy options to improve Hi-Rez Studios policy regarding the reduction of toxic player behavior it is thus important to keep in mind that more players who exhibit suspension worthy toxic behavior need to get punished, more player cases need to be reviewed, the amount of toxic player behavior that gets exhibited needs to be reduced, the number of player cases that need to be reviewed needs to get reduced, and the amount of toxic player behavior that gets exhibited by the more competitive players needs to be reduced.

Pros of this research are that this research is the first scientific research in the field of online player behavior, due to the research being carried out on the request of Hi-Rez Studios a dataset which was automatically gathered and saved by Hi-Rez Studios throughout the years was available which ensured that the data correctly reflected the state of toxic player behavior and the Player Report System within Smite. Furthermore, this research due to being the first scientific research in the field of online player behavior has been able to shed a little light on the toxicity situation within Smite of which no one exactly knew how good or bad the situation was. Lastly, this research can serve as a baseline research for other similar games to determine whether the way they counteract toxic player behavior is effective or not.

Cons of this research are that the dataset which was used consisted of pre-existing data which was not gathered for the sake of this research therefore limiting me in researching the more complex mechanisms of online player behavior, that the number of suspended players as well as the number of

suspensions within the dataset turned out to be relatively small, and that due to this research being the first scientific research in the field of online player behavior there was very little literature of research performed in a similar setting available to base this research on. Lastly, this research was limited as it focused specifically on the effectiveness of the Player Report System. Further researching the cause and underlying mechanisms of toxic player behavior could provide a deeper insight in how to reduce toxic player behavior within online games as well.

For future research I would recommend running the same kind of analysis on a bigger dataset, especially one with more cases of suspended players and number of suspensions. This could shed some light on whether the Player Report System is effective in altering player behavior. Additionally, I would recommend looking further into the underlying mechanisms that cause players to exhibit toxic player behavior, as knowing the cause of toxic player behavior could assist in creating policy which prevents players from exhibiting toxic player behavior. Furthermore, I would recommend researching what the norms and values regarding player behavior are within Smite. Questions that could be asked on this topic are: ”What is regarded as toxic player behavior, and what kind of player behavior is acceptable?” and “Do the norms and values of the game developer and the player community differ in regards to what acceptable and unacceptable player behavior is?”.

The underlying mechanisms of the Player Report System which could not be analyzed with the use of the current dataset are: whether the time in between the exhibition of toxic player behavior and the suspension of a player could influence whether a player would learn to alter his/her behavior, whether a player would relapse after a suspension, whether strong reciprocity exists within Smite’s community, whether the current system of third party punishment is not severe enough to induce players to alter their behavior, and whether the current norms within Smite exist because of false enforcement processes.

Another recommendation that I would like to make for future research is to study what the Smite community thinks of the Player Report System. A recent poll by SpiffSinister (2015), a respected member of the Smite community, showed that most players who participated in the poll did not believe that reporting a player would lead to action taken against that player. A possible consequence of this general opinion could be that players would start to regard toxic player behavior as acceptable player behavior as a result of the Broken Windows theory: players do not perceive that any action is taken against players who exhibit toxic player behavior, so players start to believe that toxic player behavior is acceptable behavior, thus more and more people start to exhibit toxic player behavior (Wilson & Kelling,

1982). More examples of aspects of online player behavior within Smite that need to be researched are how the stimulation of positive player behavior could affect the prevalence of toxic player behavior, whether the deserter status and the goodwill system are effective in reducing toxic player behavior, how toxic player behavior develops itself within a single game of Smite, and whether toxic player behavior, as the name suggests, "infects" players who entered a game with a neutral or positive attitude after which they carry it over to the next game.

9. Policy Options

To achieve the goal of this research which is to provide Hi-Rez Studios with recommendations on how to improve their current Player Report System in order to lower the prevalence of toxic player behavior within Smite several policy options based on the factors that determine the effectiveness of the Player Report System shall be reviewed. Some of the policy options are based on player behavior initiatives of the other MOBA's that were reviewed. All of the policy options that will be reviewed focus on punishing more players who have exhibited suspension worthy toxic player behavior, increasing the number of player cases that get reviewed, reducing the number of player cases that need to be reviewed, and reducing the amount of toxic player behavior that is exhibited and reported. Policy options concerning a reduction of the amount of toxic player behavior that is exhibited will either be of a retroactive nature or a proactive nature, meaning that they will either focus on punishing toxic player behavior or preventing toxic player behavior.

9.1 Retroactive policy options

This research has shown that more players who have exhibited suspension worthy toxic player behavior need to be suspended, and the amount of toxic player behavior that is exhibited within Smite needs to be reduced in order to increase the effectiveness of the Hi-Rez Studios' Player Report System in regards to reducing the amount toxic player behavior that is exhibited and stimulating positive player behavior. The following options will all focus on reducing the number of cases that need to be reviewed, or increasing the number of player cases that get reviewed, thus suspending more players who have exhibited suspension worthy toxic player behavior.

First off, we will start with policy options which could help improve the effectiveness of the Player Report System on the admin side of the Player Report System.

1) Hiring more Customer Support staff that focus on reviewing player report cases through using the Player Report System case review tool.

2) Increasing the hours per day that admins get to spend on reviewing player report cases.

Customer Support Lead Austin Gallman stated that there currently are six employees on the Customer Support team who review player cases. These six admins all spend an average of 3 to 4 hours a day on reviewing player cases, with cases taking in between 1 to 5 minutes to review. If we assume that each employee spends 4 hours a day reviewing player cases, and the average case takes 2.5 minutes to review then the total number of cases reviewed per year are 210240. As the results showed that 19.9% of the players had exhibited toxic player behavior for which they should be punished and Smite.guru (2015) states that there currently are 2.5 million active Smite players, then in a year the Customer Support team would need to suspend 497500 players. In other words, when assuming that every reviewed case results in a suspension, either the size of the Customer Support team or the number of hours that every member of the Customer Support team spends on reviewing cases should be increased in order to increase the number of cases that get reviewed thus reducing the amount of exhibited toxic player behavior by suspending more players who have exhibited suspension worthy toxic player behavior. Note that this is a very costly and labor-intensive policy option.

3) Simplifying the Customer Support case review tool by embedding notes on previous suspension on the main page of the Customer Support case review tool as well as embedding the chat logs of each game in which a player has been reported on the game details page.

Another way to allow the Customer Support team to review more cases is to increase their productivity. Currently, admins have to switch between two web portals of the Player Report tool, one containing the information regarding the player case, and the other containing the chat logs and notes on why a player has been suspended/banned before if he/she has been suspended/banned before. An easy way to increase the productivity of the Customer Support team is to embed the notes on why a player has previously been suspended on the player report case page, and to embed the chat log of every respective game in which a player has been reported on the match details page. This way admins will not have to switch between several web portals which should decrease the time to review a case. Although it will take a while to find a way to combine both web portals, in the long run this should save decrease the average time spent to review a player case.

4) Automatically suspending/banning people for second and third degree offenses through the use of a profanity filter.

Even though the results showed that the sheer amount of reports could serve as an indicator for the likeliness of whether a player had exhibited toxic player behavior, automatically suspending a player on the basis of the amount of reports could lead to unjust suspensions due to possible invalid reports. Therefore, limiting the automated ban system to only second and third degree offenses could increase the safeness of the automated ban system. Currently, within the admin portal of the Player Report System there is profanity filter which shows a red flag next to a report in case a certain word has been mentioned in the report notes, in example “faggot” or “hack”. From personal experience during my internship these cases often result in a suspension or ban, but due to having to search through several chat logs it can take a while to detect the offense. To decrease the time that is spent on these cases a program can be developed which consistently checks all players chat logs. If a certain word has been used in the in-game chat or post-game match lobby the player who used that word will then automatically get suspended after their game is finished. To prevent unjust suspensions/bans trigger words should only be words that could indicate a second or third degree suspension/ban, and direct whispers or party/clan chat should not be monitored. The toxic intention of these words is often very clear; hence it should be safe to base an automated ban on these words. If this program would be too costly to constantly keep running within the game then an alternative could be that a similar system would automatically only check the chat logs of games in which players have been reported.

5) Adding (sub)categories of toxic player behavior for which players can be reported. The (sub)categories that could be included are:” Instalocking”, “Harassment: Offensive Language”, “Harassment: Verbal Abuse”, “Grieving: Intentional Feeding”, “Grieving: Assisting Enemy Team”, “Refusing to Communicate with Team”, “Leaving the game/AFK”, “Negative Attitude”, “Inappropriate Name”, and “Spam”.

This policy option serves two purposes. First off, it would enable admins to go through chat logs with more of an idea of what kind of toxic behavior they are looking for. This can help admins figure out whether a player has exhibited toxic behavior in borderline cases. Secondly, this could be of use for monitoring how toxic player behavior within Smite changes in order to develop future player behavior initiatives that could reduce a certain kind of toxic player behavior.

6) Allowing suspended players to see for what exact reason they were suspended in the form of a suspension notification.

Previous research has shown that communication in the form of feedback after punishment has increased cooperative behavior (Ostrom et al., 1992). Therefore, feedback can serve as a valuable tool in teaching others what acceptable and unacceptable behavior is, and currently there are very limited ways for Smite players to gain feedback on why they were suspended (Ostrom et al., 1992; Baumeister et. al., 2007; Hi-Rez Studios 2013b). As this research has indicated that the current Player Report System is unsuccessful in altering player behavior, allowing suspended players to see for what exact reason they were suspended can teach them what part of their behavior is unacceptable and thus needs to be changed.

7) Developing a system in which esteemed players and respected members of the community get to review player cases and decide whether a player should get suspended/banned.

The president of Hi-Rez Studios has stated that Hi-Rez Studios spends a large amount of time supporting the community as well as listening to it and working with their feedback (Jarvis, 2015). Assuming that due to their willingness to listen to the community's feedback Hi-Rez Studios thinks part of the community is capable of making the correct judgment it could be decided to have members of the community review cases to determine whether a player has indeed exhibited toxic behavior or whether the player's behavior was acceptable, thus taking over the role of the Customer Support team. Further, multiple researches (Ostrom, 2000; Fehr & Fischbacher, 2004) have examined the role of assigned versus elected monitors who were in charge of sanctioning and found that sanctioning by elected monitors was more effective when trying to induce cooperative behavior. Therefore, having esteemed and respected members of the community get to review player cases and decide whether a player should get suspended/banned could be more effective in altering player behavior than having admins review player cases and suspend/ban players.

9.2 Proactive policy options

The following policy options are proactive in their nature, thus focusing on the reduction of exhibited toxic player behavior through preventing toxic player behavior to get exhibited. This should in turn lead to a lower prevalence of toxic player behavior within Smite, but also fewer player cases that need to be reviewed.

8) Implementing a program which automatically alerts players when they exhibit forms of toxic player behavior in order to make them aware that they have been exhibiting toxic player behavior. The program itself could alert a person after he/she has been reported several times

over their last couple of games. This alert could serve as a warning, to make people realize that they may have exhibited toxic player behavior and risk getting a suspension if they continue to exhibit similar kinds of player behavior.

This measure is based on Riot Games Behavior Alert system, which notifies players in-game after they have been reported several times over the last couple of games (Psyche, 2014). It is based on the principle that it is better to prevent than to cure, and serves as a tool to make players aware of their behavior in the hopes that they tone their behavior down and a suspension can be prevented (Psyche, 2014). This could help deteriorate the number of players that exhibit toxic player behavior to such an extent that it should become suspension worthy, which would decrease the number of cases that would need to be reviewed. Further, an initial warning with the threat of future punishment can serve as an economic incentive which might be enough for a player to alter his behavior in such a manner that punishment will not be necessary (Falk & Fischbacher, 2006).

9) Creating norms and values, or guidelines, for playing and interacting within Smite. These guidelines will not be regarded as definite rules, but should be used to teach players what is perceived as acceptable player behavior.

This policy option is based on research regarding norms, rules, and norm expectations (Schulz et al., 2007; Cialdini et al., 1990; Ostrom et al., 1992) as well as League of Legends' Summoner's Code. Caldine et al. (1990) categorized norms into two different groups: descriptive and injunctive norms. With descriptive norms being regularities of behavior, and injunctive norms being behavioral expectations that are enforced by social or material sanctions (Simpson & Willer, 2015). Both descriptive and injunctive norms play different roles in influencing social behavior. Research has shown that descriptive norms could evoke more prosocial behavior. Schultz et al. (2007) found that when other group members were made aware of typical in-group behavior they would assimilate, and adjust their behavior according to the descriptive norms. Additionally, the goal of the Summoner's Code is to provide players with a view on what positive player behavior is in order to enhance their in-game experiences (Riot Games, date of publication unknown –a). A similar player behavior initiative in Smite would be able to provide players with a view on acceptable player behavior, in other words the descriptive norms, which should lead to players realizing how they should act within a game of Smite thus leading to players assimilating to these descriptive norms and decreasing the amount of exhibited toxic behavior by players.

Furthermore, Ostrom et al. (1992) found that communication not only aided in altering behavior after punishment, but that communication could also help group members coordinate the group's behavioral expectations, and establish in which cases sanctioning would be necessary. Other research (Eriksson & Strimling, 2012) found that institutions were more effective when group members helped shape the institution as long as the participating group members tended to be cooperative. As the Smite community has cried out for help to reduce toxic player behavior within Smite there is reason to believe that if there is a possibility for players to help create behavioral guidelines in order to reduce toxic player behavior they will cooperate. This cooperation would lead to a greater involvement in the shaping of the institution, in this case the Player Behavior Initiatives, which should increase the effectiveness of the behavioral guidelines, and the extent to which these guidelines are followed (Eriksson & Strimling, 2012).

10) Creating a program which would automatically restrict the number of chat or VGS messages a player can send during a game. These restrictions could either be based on the words that are used within a chat, the number of times a player has used the VGS system in rapid succession, and/or the number of times a player has been reported for "harassment". Depending on the grounds on which a player would receive a restriction the restriction could be lifted after certain conditions have been met. In example, if a player has received a communication restriction on the grounds of 1) using certain words which can be found offensive, a player can get the restriction lifted after completing several games in which none of those words were used after a player has regained a limited amount of chat messages, 2) spamming the VGS system, the restriction could be lifted after not spamming the VGS system for a certain amount of time in a game, and 3) being reported for "harassment" numerous times, the restriction can be lifted after a player has not received "harassment" reports for several games in a row.

A player behavior initiative like this could prevent players from consistently harassing or annoying the players on their team, and teaching players that that kind of behavior is unacceptable (Gazzaniga, Heatherton & Halpern, 2009). This way players would not need to be suspended for them to alter their behavior, meaning that the number of cases that the Customer Support team would have to review would be reduced as well. If only one of these grounds on which players could receive a restriction can be enforced, then it should be the VGS system spam. Currently, admins are not able to see what VGS messages were sent during a game as they can only see the written chat messages in chat logs. This means that if a player would have been harassing another player through the VGS system there would

be no prove of it even if that player has gotten reported, and thus the player who has been exhibiting toxic behavior cannot be punished for his behavior. A similar player behavior initiative in Smite is the "ping"-system restriction in case players "pinged" the map too often in a match. This initiative has been successful in the sense that nowadays players cannot spam the map with pings anymore. The only downside of restricting the chat is that within Smite players depend on each other to pass on information, so restricting them in doing that could deteriorate a team's ability to perform (Lyte, 2013). On the other hand, there are several ways of communication within Smite that can be used to communicate with your team, and getting restricted in all means of communication is rather unlikely. A way to deal with communicating valuable information while being restricted in all forms of communication is to make certain restrictions shorter than others, for example the VGS system could limit the number of VGS-messages that a player can send out for 10 seconds, while a chat restriction could last for several games. That way even if a player has gotten multiple communication restrictions he/she should be able to provide sufficient information throughout the game.

11) A commendation system in which players get to commend other players for their gameplay, attitude, willingness to help, and general sportsmanship. This system would work much like the Player Report System as players would be able to commend other players in the post-game match lobby. Players would get commendation points dependent on who they were commended by. To make the system appealing for players either 1) certain rewards can be unlocked for getting commendation points, or 2) a list could be publicized on which people can keep track who the most commended players are. The most commended players could then go on to be featured in a weekly post on the Smite website or a similar form of exposure. To prevent an allocation of commendation points towards friends in order for them to achieve their rewards commendation points could be more valuable the lower a player's report probability is and the lower the number of previous suspensions/bans is. On top of that every player should only be able to commend a limited number of times per day, in order to make sure that only the people who truly deserve to be commended get commended.

This player behavior initiative focuses on positive player behavior rather than toxic player behavior. It should serve as an example to the Smite community that positive player behavior is appreciated, and that Hi-Rez Studios cares about creating a healthy and friendly gaming environment which stimulates players to behave well. I assume that players who are extremely negative will not get enticed by this system to alter their behavior, but it might convince the borderline cases to sway more towards being

positive rather than being negative. Note, rewarding players for exhibiting prosocial – positive player – behavior could result in players' perception about what motivates others to act prosocial being altered in such a way that players' think basing decisions on self-interest is normal (Simpson & Willer, 2015). As decision making on the basis of self-interest leads to forms of non-cooperative behavior, rewarding players for exhibiting prosocial behavior could lead to more toxic player behavior (Simpson & Willer, 2015; Fehr and Gächter 2000).On the other hand, research has proven that reputational rewards that are earned by those who behave prosocial are a powerful tool in shaping prosocial action (Simpson & Willer, 2015). So to stimulate positive player behavior and to refrain from strengthening the idea that self-interest is normal through rewards based on the commendation system, the commendation system should feature reputational rewards instead of extrinsic rewards. This could be done by publicizing the list of the top commended players. If Hi-Rez Studios would still prefer to extrinsically reward players for their positive player behavior, they should do so on the basis of the reputational reward in order to prevent self-interest from being perceived as the norm.

10. Review of the Policy Options

Now several policy options have been suggested. These policy options will get reviewed on the grounds of several conditions that need to be met before any recommendations are given. These conditions have never been stated officially, but they are conditions that I would deem valuable in the process of reducing toxic player behavior within Smite, improving Smite's Player Report System and implementing new player behavior initiatives. These conditions have been mentioned in previous meetings with Hi-Rez Studios' employees, and are as follows: time, costs, range, assumed effectiveness, and nature.

The condition "time" represents the time it takes to develop and implement the player behavior initiative. It thus represents the direct deploy ability of a measure. Hi-Rez Studios would like to see toxic player behavior reduced as quickly as possible, so taking into account how fast a player behavior initiative can be deployed is of importance when determining the best policy options. As time in itself is not a crucial factor this condition can be considered to be one of the lesser important conditions. If the development/implementation time is considered to be fast it will be depicted with a plus, and if it is considered to take a long time it will be depicted with a minus.

The condition "costs" represents the expected resources it costs to develop/implement a player behavior initiative. As Hi-Rez Studios has a limited amount of resources they wish to spend on developing and implementing the player behavior initiatives that will be recommended, it is of

importance to test the measures to this condition. If the costs are expected to be low this will be depicted with a plus, if the costs are expected to be high it will be depicted with a minus.

The “range” condition stands for the number of players the player behavior initiative will have effect on. In other words, is the policy option only going to affect one group of players or will it affect multiple groups of players. In this case a group of players refers to groups such as, players who exhibit toxic behavior, positive players, borderline cases, or players who have been suspended before. The range of the effect together with the expected effectiveness and the nature of a player behavior initiative are the most important conditions as these conditions indicate whether a policy option is worth the time and costs to develop and implement it. If the range of a player behavior initiative affects multiple groups it will be depicted with a plus, and if it affects a single group it will be depicted with a minus.

The “effectiveness” condition refers to the expected effectiveness of the player behavior initiatives to allow for more players who exhibited suspension worthy toxic behavior to get punished, for more player cases to get reviewed, for the amount of toxic player behavior that gets exhibited to get reduced, and for the number of player cases that need to be reviewed to get reduced. Hi-Rez Studios prefers to reduce toxic player behavior as well as to stimulate positive player behavior in order to create a friendly and healthy gaming environment for their players. So much so that Hi-Rez Studios considers the community in which players play their games to be so important that creating a healthy gaming environment is one of the key principles for Hi-Rez Studios. The “effectiveness” condition is thus the most important condition to which the player behavior initiatives will be tested. If the expected effectiveness is considered to be large it will be depicted with a plus, and if it is considered to be small it will be depicted with a minus.

Lastly, the nature of the policy options is tested. The nature of a policy option can either be retroactive, punishing players for exhibiting suspension worthy toxic player behavior, or proactive, preventing players from exhibiting suspension worthy toxic player behavior. On the principle that it is better to prevent than to cure, the nature of a policy option will be depicted as negative (-) if it the policy option is retroactive, and as positive (+) if it is proactive. To increase the effectiveness of the Player Report System more players who exhibited suspension worthy toxic behavior need to get punished, more player cases need to get reviewed, the amount of toxic player behavior that gets exhibited needs to get reduced, and the number of player cases that need to be reviewed needs to get reduced. The proactive nature of measures will help reduce the amount of toxic player behavior that is

exhibited, thus reduce the number of player cases that need to get reviewed and at the very least reduce the amount of players that need to get suspended. Thus the nature of a policy option together with the expected effectiveness and the range of a policy option can be seen as the most important conditions to which policy options should get tested.

In table 3 the policy options a schematic overview of the score of each player behavior initiative on the conditions are depicted. The scores of these player behavior initiatives is an expectation of how a player behavior initiative would score on the condition, which is based on an inventory that was drawn up in previous meetings with Hi-Rez Studios employees.

Table 3 Review of the policy options. Legend: + = positive, +/- = neutral, - = negative, and n.a. = not applicable

	Time	Costs	Range	Effectiveness	Nature
Hiring more CS staff	+	-	n.a.	+	-
Increasing CS team hours to review cases	+	-/+	n.a.	+	-
Simplifying the CS case review tool	-/+	+	n.a.	-/+	-/+
Automated suspension/bans	-/+	+	-	-/+	-
Adding (sub)categories in the PRS	+	+	-	-	-/+
Suspension notification	+	+	-	-/+	-
Having community members review cases	-	+	+	+	-
Behavior alert system	-	-/+	+	+	+
Creating guidelines	+	+	+	+	+
Communication restrictions	-/+	-/+	+	+	+
Commendation system	-	-	+	-	+

Judging by table 3 the most effective policy options are: to hire more Customer Support staff, to increase the hours per day that Customer Support can spend on reviewing cases, having community members review cases, implementing a behavior alert system, creating guidelines, and implementing communication restrictions. Hiring more Customer Support staff and allowing the hours per day that the Customer Support team gets to spend on reviewing cases should immediately increase the number of cases that get reviewed. This should result in the suspension of more players who have exhibited suspension worthy toxic player thus increasing the effectiveness of the Player Report System. A

downside to these policy options is that it is expensive to employ more admins and that if the Customer Support team does get to spend more hours on reviewing player cases their other job responsibilities need to be taken over by other employees. These policy options could prove effective when implemented, but only in combination with player behavior initiatives that decrease the amount of exhibited toxic player behavior or the number of cases that need to be reviewed.

Having esteemed players and community members review cases should increase the number of cases that can get reviewed immensely, which should increase the effectiveness of the Player Report System. On the other hand, Hi-Rez Studios would be outsourcing their main mean of reducing toxic player behavior if this policy would get implemented. Meaning that the players and community members who would review the cases would gain control over the decision of who should get suspended/banned and who should not. This can both be a positive and a negative aspect dependent on Hi-Rez Studios standpoint on player behavior. If Hi-Rez Studios viewpoint on player behavior is that the player community determines what the norms and values, and thus determines what acceptable player behavior is then giving the community control over the suspension/banishment of players can be seen as a positive aspect. After all, who better to judge whether a player has been exhibiting toxic behavior than those who decide what toxic player behavior is. If on the other hand the viewpoint of Hi-Rez Studios is that Hi-Rez Studios determines what kind of behavior is acceptable player behavior then giving control over the suspension/banishment of players to the esteemed players and community members can be seen as a negative aspect of the policy option. The first two effective policy options are similar to this policy option in the way they function as they allow for more people to review cases, resulting in more players who have exhibited suspension worthy toxic player behavior to get suspended, and thus for the Player Report System to be more effective. They can therefore be considered to be each other's counterparts and the most fitting one would be dependent on the viewpoint of Hi-Rez Studios. Considering that Hi-Rez Studios has had a Customer Support team in charge of the suspension/banishment of their players for at least the last 5 years I am assuming that Hi-Rez Studios would prefer to let their Customer Support team keep control of reviewing player cases (Steam, date of publication unknown).

Implementing a player behavior alert system should prevent players from exhibiting toxic behavior to such an extent that it becomes suspension worthy. This should lower the number of cases that need to be reviewed, thus increasing the effectiveness of the Player Report System. On top of that it should reach all groups of players, but mainly affect those players who are neutral have a bad day

every once in a while which. The only downside to it is that the creation of a behavior alert system can be rather complex meaning that it can take quite a long time to develop. With time-inefficiency comes a relatively high cost of development, but the long term benefits of a player behavior alert program should outweigh the costs and time to develop it.

Creating behavioral guidelines for players should give Smite's community a clearer view of what acceptable player behavior is. When these guidelines are created and become public, and people are likely to follow these guidelines the amount of toxic player behavior that gets exhibited should be reduced. This could limit the amount of toxic player behavior that is exhibited, as on the basis of these behavioral guidelines it should be clear for players what kind of player behavior they can and cannot exhibit. Furthermore, implementing behavioral guidelines should be a time- and cost-efficient measure which, dependent on whether Hi-Rez Studios would like to create these guidelines with the feedback of their community, should be able to get implemented within a few weeks. Whether guidelines on their own can fully achieve a shift in what is considered to be acceptable player behavior is unknown, but due to the time- and cost-effectiveness, large range, and proactive nature of the policy option there is no reason to not implement this measure.

Depending on the form of communication restrictions that Hi-Rez Studios would implement the development time varies. It should not cost much time to implement a VGS system restriction, as this system can be based off of Hi-Rez Studios' current "ping" restriction. If Hi-Rez Studios would want to include chat restrictions based on trigger words then that could take longer to implement. The longest development time would be for chat restrictions based on harassment reports that would be filed against a player. The range of communication restrictions is rather large. It only really affects those players who exhibit toxic player behavior, but it monitors the behavior of all players. Due to its proactive nature and the fact that it is an automated system it should increase the effectiveness of the Player Report System. Furthermore, it is highly likely that players who receive communication restrictions do see this as a form of punishment, meaning they are likely to alter their behavior after receiving such a restriction (Skinner, 1981). Especially due to communication restrictions occurring fairly quickly after the toxic player behavior has been exhibited (Gazzaniga, Heatherton & Halpern, 2009). On top of that, due to communication restrictions players will have less ways to exhibit toxic player behavior, which could result in a limitation of the amount of exhibited toxic player behavior if players decide to not take their frustration out in other ways.

11. Policy advice

First and foremost it should be mentioned once more that this research has proven that the Smite's Player Report System is currently ineffective. The ways to increase the effectiveness of Smite's Player Report System are through punishing more players who exhibit suspension worthy toxic behavior, reviewing more player cases, reducing the amount of toxic player behavior that gets exhibited, reducing the number of player cases that need to be reviewed, and the amount of toxic player behavior that gets exhibited by the more competitive players needs to be reduced. Keeping in mind these 5 mechanisms I recommend that the following policy options get implemented in Smite in order to reduce toxic player behavior through improving the effectiveness of the Player Report System and to promote positive player behavior within Smite:

Firstly, prevention is better than cure therefore the emphasis will be put on the proactive policy options. These policy options are: a player behavior alert system, communication restrictions, and behavioral guidelines. The player behavior alert system will alert players if they are exhibiting toxic player behavior before the player reaches the point at which his/her behavior is suspension worthy. An alert saying that a player has been exhibiting toxic player behavior and might want to take a break will pop up after a player has been reported several times in a row. This alert serves as a minor wake up call for players to become aware of their behavior, so they get the chance to adjust their behavior before it becomes suspension worthy.

Communication restrictions come in three forms: a VGS message restriction, a filter based chat restriction, and a harassment report based chat restriction. Out of these three I would strongly recommend to implement the VGS message restriction and the chat restriction based on harassment reports. The VGS message restriction is the easiest to implement. It can be based on the current "ping" restriction system, and should prevent players from spamming certain VGS commands that other players might find offensive. The chat restriction based on harassment reports is harder to implement as a program that monitors the number of reports a player receives in a short period of time would need to be developed. As the behavior alert system also needs a similar program to be developed prior to the implementation of the behavior alert system, this limitation should not be a reason to not implement harassment report based chat restrictions.

The behavioral guidelines are more so a necessity than a policy option. Smite currently has a suspension/ban policy which indicates what unacceptable player behavior is, but an example of what accepted player behavior is cannot be found anywhere. Creating behavioral guidelines cost relatively

little effort, does not have a downside, and could help in preventing toxic player behavior from being exhibited, especially if role models were to follow and promote these guidelines (Gazzaniga, Heatherton & Halpern, 2009). I further recommend that these behavioral guidelines will be set up with the help of the Smite community, as previous research has proven that communication could help shape the group's behavioral expectations, and establish in which cases sanctioning would be necessary (Ostrom et al, 1992). Additionally, research has found that greater involvement in the shaping of behavioral expectations, in this case the behavioral guidelines, should increase the extent to which people adhere to these expectations (Eriksson & Strimling, 2012).

These previously mentioned policy options are meant to prevent players from exhibiting toxic player behavior, thus reducing the amount of toxic player behavior that is exhibited within Smite. Consequentially proactive policy options reduce the number of player cases that need to get reviewed, meaning that some weight will get taken off the shoulders of the Customer Support team.

As the Player Report System has been deemed ineffective in punishing toxic player behavior more players who have exhibited suspension worthy toxic player behavior need to get suspended. To increase the effectiveness of the retroactive aspect of the Player Report System the implementation of the following policy options is recommended: an automated suspension/ban system for second- and third degree offenses, implementing a suspension notification, simplifying the Customer Support team case review tool, and possibly expanding the Customer Support team as well as increasing the amount of time they can spend on reviewing cases on a daily basis.

An automated suspension/ban system for second- and third degree offenses could be based on a profanity filter that would need to get developed first. If a player uses certain words which the profanity filter regards as words that are suspension worthy then a player would get banned automatically. The reason why the automated suspension/ban system should limit itself to second- and third degree offenses is because words that lead to a second- or third degree suspension/ban are easily recognizable as opposed to the harder recognizable words that usually result in a first degree suspension, and even though the results have showed that the sheer number of reports can indicate whether a player has exhibited toxic player behavior an automated suspension/ban system on the sheer number of reports cannot accommodate for invalid reports. These to a second- or third degree suspension leading words can be considered to be the most offensive kinds of words a player can use to harass another player, and therefore these words are easy to distinguish through a profanity filter.

Implementing an automated suspension/ban system should reduce the number of cases the Player Report System would need to review.

Allowing players to see the reason for their suspension can give the suspended player clear feedback on why exactly he/she was suspended. A player can use this feedback to alter his/her behavior, and make sure that he/she doesn't exhibit a similar form of toxic player behavior again. The suspension notification is a mechanism that is applied to a retroactive aspect of the Player Report System, but will have a proactive effect on toxic player behavior as it will teach players what part of their behavior needs to be altered thus teaching them to refrain from exhibiting similar suspension worthy toxic player behavior in the future.

Simplifying the Customer Support team case review tool is an easy way to increase the productivity of the Customer Support team. By merging the two portals that admins currently have to switch between in order to fully review a case, the amount of time that an admin would spend on reviewing a case will be reduced. A reduction of the average amount of time an admin spends on reviewing a case should result in an increase in the number of cases an admin can review in one player case review session.

The last recommendation is to expand the Customer Support team. Currently, there are only 6 admins on the Customer Support team who review player cases. As it is they are already having a hard time reviewing all the cases that need to be reviewed, and suspending those players who have exhibited suspension worthy toxic player behavior. With Smite growing immensely, which is partially due to Smite getting released on Xbox One in the near future, an even bigger growth in the number of Smite players is to be expected. With Smite only growing larger, the number of cases that need to get reviewed will also increase. Employing more admins on the Customer Support team is a very costly policy option, but it is also the policy option which can almost directly be implemented. Employing more admins on the Customer Support team means that more people will be reviewing cases, thus more cases will get reviewed, and more players who have exhibited suspension worthy toxic behavior get suspended. Having the Customer Support team spend more hours per session on reviewing player cases should also increase the number of cases that can be reviewed. As a result, more players who have exhibited suspension worthy toxic player behavior will get suspended and thus the amount of toxic player behavior within Smite will get reduced. The Customer Support team would need to be relieved of their other responsibilities in order to spend more time on reviewing player cases, which would mean that other personnel would need to take over these responsibilities. This could possibly mean that more

employees would need to get hired. This recommendation is closely tied to the recommendation to hire more admins.

I would recommend prioritizing all other policy options over these last two policy options, as the latter two policy options are expected to be the most expensive policy options. Furthermore, implementing the proactive policy options and other retroactive policy options should limit the workload of the Customer Support team, and depending on the effectiveness of these policy options an expansion of the Customer Support team might not be necessary. These previously mentioned policy options are focused on suspending more players who have exhibited suspension worthy toxic player behavior, in order to teach players what acceptable and unacceptable player behavior is. Although all retroactive policy options focus on punishing players who have exhibited toxic player behavior, all of these policy options should have a proactive effect on the prevalence of toxic player behavior as these policy options strive to alter suspended players' player behavior.

Two final policy options that I would recommend to implement, but that do not influence the effectiveness of the Player Report System is: adding more (sub)categories of toxic player behavior in the Player Report System and continuously monitoring the prevalence of toxic player behavior within Smite from now on. Adding more (sub)categories of toxic player behavior in the Player Report System is by no means a necessity, but can prove to be useful in the future research when studying toxic player behavior within Smite. Adding more (sub)categories of toxic player behavior in the Player Report System can assist in developing player behavior initiatives which specialize in dealing with one particular form of toxic player behavior. Continuously monitoring the prevalence of toxic player behavior within Smite can shed some light on how the toxic player behavior situation within Smite changes over time. Furthermore, continuously monitoring the prevalence of toxic player behavior within Smite can provide Hi-Rez Studios with information on how effective the to be implemented policy options will have been.

Summarizing, to achieve the goal of this research which was to provide Hi-Rez Studios with recommendations on how to improve their current Player Report System in order to lower the prevalence of toxic player behavior within Smite, keeping in mind the factors, which can be influenced by policy, that determine the effectiveness of Hi-Rez Studios Player Report System the following policy options are recommended to be implemented: a player behavior alert system, communication restrictions, behavioral guidelines created with the help of the Smite community, an automated suspension/ban system for second- and third degree offenses, implementing a suspension notification,

simplifying the Customer Support team case review tool, and possibly expanding the Customer Support team as well as increasing the amount of time they can spend on reviewing cases on a daily basis.

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13. Appendix I – Tables

Table 3 Shapiro-Wilk test of normality for the number of reports a player got filed against them prior to as well as after their suspension.

Variable	W	df
Reports prior to suspension	.879**	19
Reports after suspension	.923	19

Note: * = p < 0.05, ** = p < 0.01, *** = p < 0.001

Table 4 Model 1 and 2: Total Games Played by a Player in relation to Report Probabiliy

	Model 1			Model 2		
Variables	*B*	*SE B*	*β*	*B*	*SE B*	*β*
Constant	.052***	.004		.041**	.005	
Control variable						
Account id	$-8.22 * 10^{-10}$*	.000	-.065	$-8.24 * 10^{-11}$	.000	-.007
Total Games Played				$7.912 * 10^{-6}$***	.002	.140
R^2	.004			.020		

Note: * = p < 0.05, ** = p < 0.01, *** = p < 0.001

Table 5 Model 1 and 2: Prediction of Player Suspension in relation to Total Reports Filed against a Player

	Model 1				Model 2			
Variables	*B*	*SE B*	*Wald*	*Exp(B)*	*B*	*SE B*	*Wald*	*Exp(B)*
Constant	-3.113***	.581	28.668	.044	-6.729***	1.434	22.031	.001
Control variable								
Account id	.000*	.000	4.317	1	.000	.000	.361	1
Total Reports Filed					.016***	.003	37.202	1.016
Correct Predicted Percentage								
Not suspended	100				99.7			
Suspended	0				38.5			
Overall	98.7				98.9			
Chi²	4.204*				62.894***			
Nagelkerke R²	.032				.471			

Note: * = p < 0.05, ** = p < 0.01, *** = p < 0.001

Table 6 Model 1 and 2: Total Hours per Game Played by a Player in relation to Report Probabiliy

	Model 1			Model 2		
Variables	*B*	*SE B*	*β*	*B*	*SE B*	*β*
Constant	.052***	.004		-.019	.013	
Control variable						
Account id	$-8.22 * 10^{-10}$*	.000	-.065	$1.16 * 10^{-11}$	.000	-.001
Total Hours per Game Played				.196***	.033	.194
R^2	.004			.036		

Note: * = p < 0.05, ** = p < 0.01, *** = p < 0.001