Toxic behavior in online cooperative game play

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ABSTRACT

Video games have become the number one entertainment industry in the world and is growing exponentially. Millions of people play video games every day. Many players have experienced what is known as toxic behavior in their online communities. Toxic behavior has become a large issue in the gaming community, keeping players from enjoying the games they want to play. The purpose of the study is to identify the factors leading to the toxic behavior that has been unchecked in the gaming world.

This study looked at the perception of player skill and the expectations of skill generated through the bounded generalized reciprocity theory as a factor contributing to the cause of toxic behavior. Using the violations of those expectations we project onto our teammate, and the fundamental attribution error of explaining human behavior to elicit toxic behavior as well and mitigating it through the manipulation of an external situation.

The results show support for skill perception, expectations and as factors in eliciting toxic like behaviors. Putting participants in a video game where their teammate is exceptionally poor at the game can show the formulation of toxic behavior. Playing with this poor performing teammate with no other explanation readily available, players turn to dispositional attributes to explain the poor performance at the game, ultimately leading to toxic like behaviors. When provided a situational factor to the causes of poor performance, players showed a significant decrease in the toxic like behaviors.

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CHAPTER I

INTRODUCTION

Research in the area of video games has been steadily growing over the past years, as video games have become one of the world's largest industries, generating $91 billion for the world market of 2016 (Takahashi, 2016) . The effects of cooperative vs. competitive game play have been at the forefront of the research of video games. The benefits of cooperative game play have been duly noted. For instance, research suggests that players in a cooperative state of mind are less aggressive than players in a competitive state of mind, and cooperative game play with a helpful teammate can lead to an overall more prosocial person, even when playing a violent video game (Anderson, 1995; Ewoldson, 2012; Velez, 2015;). However, this expedition to find the positive and prosocial aspects of cooperative game play has left gaps in our understanding of negative outcomes of playing video games in a cooperative setting.

Most gamers don't acknowledge the negative aspects of cooperative game play; however, it is an unavoidable aspect of playing video games with others, particularly online. Getting yelled at over voice chat while playing "Call of Duty," players finding creative ways to circumvent the profanity filter in "League of Legends," and receiving constant verbal abuse while trying to play "Overwatch" are common examples of "toxic" behaviors experienced by players in multiplayer video games. This issue of toxic behavior runs rampant in some of the most populated games, and only a few companies like Riot games, the maker of League of Legends, have had success dealing with it.

Indeed, Riot games has started its own division for toxic behavior prevention. In an article by the game news organization, Polygon, Riot games described toxic behavior as "negative chat, offensive language and verbal abuse… that often go hand-in-hand" with online game play (Mcwhertor, 2012).

Numerous studies have looked at toxic behavior as an outcome, how to retroactively deal with toxic behavior, the different types of toxic behavior, and the manifestation of toxic behavior (Blackburn, 2014; Foo, 2004; Kwak, 2015). There is even an in-depth analysis of how Riot Games deals with its toxic players through a post-game reporting system, called the tribunal, that allows the players you encounter in a given match to report any toxic behavior (Blackburn, 2014). However, there is still the question of what causes toxic behavior in the first place, and no research has attempted to answer the question why toxic behavior occurs or how to mitigate it. The current study is trying to answer why toxic behavior occurs in a gaming environment by providing a theoretical foundation, using the bounded generalized reciprocity theory in conjunction with attribution theory in the hopes of identifying a viable option of lessening the effect of toxic behavior.

Bounded Generalized Reciprocity

This theory started in a series of experiments to test the minimum group paradigm (Yamagishi, 1999). This paradigm looks at the minimal conditions necessary to form relationships with others (Yamagishi, 1999). Previous research has found an overarching theme of ingroup favoritism in minimal group settings, regardless of where or how the lines were drawn for the groups (Tajfel et al, 1971). Using social identity theory, Billig

and Tajfel (1973) tried to show ingroup favoritism and outgroup disdain. A partial replication of the Tajfel (1971) minimal group experiment was conducted by Karp et al. (1993), who deemed the outcome of ingroup and outgroup bias was due to "Multilateral fate control." Multilateral fate is the act of controlling the outcome for someone else simultaneously as they control it for you (Yamagishi, 1999). This is with respect to a simultaneous donation game, where the amount received by a participant is dependent on another person's donations as opposed to a set amount (Yamagishi, 1999). The prisoner's dilemma game is a measure of pro-social behavior that involves a person with the option to give money to another person, as well as them having the option to give money back to the original perosn. The amount of money given to the other person is a measure of the prosocial tendencies. The game can be played simultaneously or in sequence. The successful partial replication by Karp et al. (1993) showed the elimination of the ingroup/outgroup bias when the participant was given a fixed amount, but it spurred an alternative explanation that could be contributing to the lack of bias (Yamagishi, 1999). They theorized that it was possible that the elimination of the bias was attributed to the creation of another ingroup and outgroup dynamic, namely the "allocators" and the "recipients" (Yamagishi, 1999). To rule out this confounding variable, Jin et al. (1996) conducted a follow-up study of the Karp (1993) replication, but also had the participant evaluate their ingroup member as well as favoritism conceptualized as money allocation (Yamagishi, 1999). They found exactly what they predicted when altering experiment one, the mitigation of the ingroup and outgroup bias was found in participants that where given a fixed amount for their role in the study, but the original ingroup outgroup dynamic was still held together as shown by the ingroup boasting (Yamagishi, 1999).

These two studies are the backbone for the theory of bounded generalized reciprocity. Karp et al (1993) highlighted the lack of ingroup favoritisms when there is no multilateral fate control, meaning the outcome of each person is controlled by the other, like a simultaneous donation game, then we will observe ingroup favoritisms with those donations. This also sets up an expectation of reciprocal behavior (Yamagishi, 1999). In the series of experiments conducted by Yamagishi and fellow researchers (1999), it was shown that participants expect ingroup members to give them favorable treatment and in turn they demonstrate that same favoritism. Interestingly, Yamagishi (1999) found that individuals have a propensity to project their cooperative behaviors onto others in our ingroup at a higher level than those people in their outgroup. This outlines the basic expectations of our ingroup when working towards a common goal. The bounded generalized reciprocity has been shown to be a key theory to explain complex pro-social behavior in video games. In his experiments, Velez (2015) showed that participants have expectations of reciprocated prosocial behavior when playing on a team, or ingroup, in a video game. Velez (2015) also found that when these expectations are violated, not being prosocial or "unhelpful," participants donate less in the subsequent sequential prisoner's dilemma game, conveying less prosocial behavior. This is important because it shows a mitigation of positivity when our ingroup members do not meet our projected expectations.

Toxic behavior is often observed in skill-based games (e.g., competitive or e-sport type games). These are games that have a very steep learning curve between the novice and the expert. In these games, teams have a common goal to win the round, match, or

game and according to the bounded generalized reciprocity theory, individuals project the expectations that we hold of themselves on to their ingroup members (e.g., teammates) setting up an expectation of their teammates to put forth the effort or contribution to the overall goal of winning the game with skillful gameplay (Yamagishi, 1999). If the bounded generalized reciprocity theory says that people project their expectations of themselves onto their ingroup members who share a common goal, then the amount of skill expected should be based on your own skill at the game since the expectation of playing to your best skill would be the projected expectation (Yamagishi, 1999). Velez (2015) found that when expectations are not met, then the violation of those expectations will warrant less prosocial behavior. So if the skill of a teammate is the projected expectation that are based on the skill expectations the player holds of themselves, and the teammate violates that expectation by performing poorly, then the player will exhibit less prosocial behavior towards that teammate. Since the expectation projected is the same expectation the player has for themselves, then the expectations of a player who perceives themselves as a highly skilled player will be high expectations of skill, while the expectations of a player that perceives themselves as a low skilled player will be low expectations of skill.

H1: Participants with a higher perceived skill level will have higher expectations of their teammate's skill level.

Using Yamagishi's (1999) bounded generalized reciprocity, a player would expect a reciprocal skill level from their teammate based on their own skill. That expectation can either be met or violated as discussed by Velez (2015). The higher skilled

players place themselves higher on a continuum of skill, and therefore the greater skill expectations they have of teammates, the more likely they will perceive such expectations are violated compared to satisfied. Conversely, the lower skilled players place themselves lower on the continuum of skill, and therefore the lower their expectations of teammates' skills, the less likely these expectations are violated. This leads to the following hypothesis.

> H2: Participants with higher perceived skill levels will be more likely to perceive their teammate to violate expectations than participants with lower perceived skill level.

As mentioned earlier, Velez (2015) showed a much lower prosocial tendency in players who had their expectations violated. [This was a step in the right direction, but there was a missed opportunity in the measurement of prosocial behavior in the fact that there was no negative behavior measured.] Based on the theoretical understanding of the bounded generalized reciprocity, negative behavior could have been found in Velez's (2015) experiment. However, that study failed to measure anti-social behavior. Without measuring the full spectrum of behavior, both positive and negative, the understanding of expectation violations in cooperative game play is incomplete. As a result, this study is extending that measure to complete the spectrum of outcomes from violating expectations. In the context of this study, the violation is in the expectation of the teammate's skill, one of the most common violations as a result of online cooperative gameplay. This expectation violation may lead to negative behaviors, specifically the toxic behavior often found in video games, but Bounded Generalized Reciprocity cannot

solely account for the nature and severity of toxic behaviors. Toxic behaviors often go past the bounds of the video games, and that is where the bounded generalized reciprocity theory falls short.

Toxic Behaviors

Toxic behaviors are exhibited by players known as "greifers" (Foo, 2004). These players carryout different types of toxic behavior that includes harassment, power imposition, scamming and greed play (Foo, 2004). For the purposes of this study, harassment has been isolated since it is one of the more predominant forms of toxic behavior (Foo, 2004). To try and identify the root causes of toxic behavior, each form of toxic behavior needs to be studied in isolation in a series of research studies, and this will be the first in that line. Foo (2004) explains that online video games are more than just games, they are social systems. As such, examples of harassment mirror the types of harassment you might see in a face-to face interaction. A few outlined by Foo (2004) include slurs, spamming, spatial intrusion, event disruption, stalking and even threats. Each one of these can go beyond the bounds of the video game to a real-world interaction. Saarinen (2017) conducted a comprehensive in-depth interview with players of online games and their experience with toxic behavior. Although player skill is not the only factor leading to toxic behavior, many of the respondents highlighted its significance to toxic behavior (Saarinen, 2017) For example, interviewee Mike stated that greifers use "nasty comments if [they] notice someone in [the] group making a mistake or playing bad," interviewee Nick recalls, "if you play bad some players start calling you names" and interviewee Andy stated, if "someone made a mistake or someone was playing bad…

his teammates were frustrated by that and started insulting the guy in chat" (Saarinen, 2017). Out of all the interviews in the study, every one of them stated they have experienced each type of toxic behavior, speaking to the common nature of toxic behavior and the importance of trying to find a root cause (Saarinen, 2017). This poor performance often goes from being about a player's perceived skill to other non-related attributes. Where it might have started out as just being called a bad player, different types of harassment target the player behind the game and their personal life. Mentioned above, the bounded generalized reciprocity theory cannot explain why the toxic behavior spills over to real-world implications as the toxic behavior that goes beyond the context of the video game that is being played. Toxic behavior extends past the in-game persona of the target and attacks their real selves behind the persona. Therefore, we have to build on the theoretical foundation of the phenomenon at hand by utilizing another theory that can explain that next step in the process of toxic behavior. This connection of the players poor performance to a non-related attribute can be explained by a branch of the attribution theory called the fundamental attribution error.

Attribution theory

It is human nature to try explaining the world around us, but how do people attempt to explain something as complex as human behavior? Fritz Heider (1944) created attribution theory which proposes that people perceive the cause of human behavior as coming from either A, the actor or object displaying the behavior, or B, from some other external source. Mirsadeghi (2013) later breaks this down into three distinct categories. The first category is called "assumed situational factors" (Mirsadeghi, 2013). The second

category is “unintentional and accidental,” also referred to as “situational attribution” (Mirsadeghi, 2013). The third and final category is “personal behavior traits” also called “personal records (Mirsadeghi, 2013). This is an important distinction made by Heider, on one side you have causes that come from within (i.e., dispositional factors) and on the other hand you have the world and everything else outside of the actor (i.e., situational factors). This lays the ground work for the fundamental attribution error.

Fundamental attribution error

Attribution theory explains the way we understand how people infer and explain observations of behavior (Heider, 1958). Ross (1977) coined the term "fundamental attribution error" for nonmotivational biases, like overestimating the impact of dispositional factors contributing to a person's behavior. Heider (1958) offers an explanation to why this might happen - people inherently look at the actor that is exhibiting the behavior we are currently assessing. This causes us to make judgements on that person’s character and tie that behavior to what is being observed, regardless for external factors that could really be the cause (Tetlock, 1985). Because of this, we generate a perception that aggressive people are labeled as such by the observation of aggressive behavior, intelligent people are labeled as such by the observation of intelligent behavior (Tetlock, 1985). Nisbett and Ross (1980) further this by proposing that dispositional attributions are the first explanation that the mind can come up with. The fundamental attribution error, as a whole, is attributing dispositional factors to another person’s observed behavior, including things that have nothing to do with the exhibited behavior, while also excluding possible situational factors. When playing a

video game and analyzing a teammate's violation of held expectations, the process of attribution theory should be enacted, leading to the possibility of the fundamental attribution error. Focusing on the actor of a behavior as the cause of the observed behavior is the default setting when assessing human behavior, resulting in a higher likelihood of defaulting to the idea of disposition attributes as an explanation (Tetlock, 1985). If the violation of expectations does not occur, the game should be played like normal, and there is no reason to scrutinize a teammates' performance or try to explain their behavior, because it aligned with what was expected. This leads to the following hypothesis:

H3. Participants whose expectations are not met will attribute more dispositional causes to a teammate's poor performance than participants who perceived their expectations to have been met.

Dispositional Attributes

When a player makes a mistake, or their performance is perceived to be below what is expected of them, and the cause has been determined to be dispositional (i.e., their ability to play the game) then they can exhibit the negative attributes used to describe behavior mentioned above. Two more interviewees from the Saarinen (2017) research interviews attest to this very instance saying "people were often harassing [a] player who was seen as less skilled," reported by Mike, and "most common insults I've seen are calling someone retard or making racial remarks" reported by Nick. Players become ruthless, shifting the conversation to a personal nature. Aside for the normal expletives used as general hate, a more focused effort is to address the player's internal

attributes, such as their intelligence. This is a common starting place that usually devolves to a stereotype driven description of the at-fault party as a basement dweller with no life or a little kid that shouldn't be playing video games in the first place. [This implies that they have no life or they are a loser that no one likes, and they are too bad at video games to play with the current team.]

> H4. Participants who attribute more dispositional causes to a teammate's poor performance will extrapolate their perceived incompetency to other, lead to providing negative feedback about their teammate to others and unrelated aspects of their teammate's personal life.

Situational Attributes

Poor performance caused by situational factors as a common excuse in the world of video games, but not always the easiest to convince other because you have a limited amount of time in your interaction and usually no way to actually prove it. Because there is no real way to prove it, just like Heider (1958) describes, we look inward at the actor as the root of their action and the cause for their observer behavior. To shift the focus of what cause the poor performance from the actor and their dispositional attributes, a relevant situational factor should be available to observe (Tetlock, 1985). This is the main focus of the current study: to manipulate the cause of the poor performance and see the difference in participants when given a prompt as to the cause (i.e. defaulting to the dispositional attributes of the actor) or providing a viable situational cause that would explain the poor performance.

H5: Providing an external cause a teammate's poor performance will reduce the violation of expectations and thus, internal attributions for teammates' performances.

CHAPTER II

METHODS

Participants

83 participants took part in the study. Two participants were removed from the data set because they did not complete the study in its entirety. Five more participants were removed from the data set due to technical difficulties with the hardware. These complications were all early in the collection process and remedied before collection proceeded. A total of 76 participants (*Female:29.3%; Age: M= 21.10, SD:1.885)* from a large southwestern university participated for extra credit and one entry into a drawing for a $100.

Design and procedure

There were 2 (external explanation vs. no explanation) conditions with the participant skill level as the naturally occurring independent variable. Participants will be playing the game with a confederate to keep with the anonymity of playing online games. Participants were brought into the living room lab setting alone and sat at a desktop computer to complete the consent form and the online pre-test measuring their video game habits, perceived skill at video games, and their expectation of the anonymous teammate they would be playing with for the duration of the study.

Meanwhile, the confederate, who would be playing the game with the participant, was down the hall in another room observing the experimenter and participant on a

closed-circuit audio and video monitor. To make the participant as comfortable as possible and free to express themselves, they were told the other participant they would be playing with was from another university. This was to ensure participants believed there was no chance of running into the confederate on campus given the potential of the current manipulation to cause toxic behavior. Also, this allowed participant's teammate to be devoid of any descriptive characteristics, eliminating any confounding variable in the form of any predispositions participants could have formed about their teammate.

Once the participant was finished with the pretest, the experimenter instructed him/her to move from the computer desk to the couch, again to make them as comfortable as posable as well as resemble a normal gaming environment. The participants played 15 min of Rocket League (A game that is a hybrid between cars and soccer) with the confederate as their teammate against two computer controlled characters set to the easiest difficulty setting. Participants were informed that the first 5 min round of game play was just a practice round. This was so the confederate could adjust the computer difficulty if the participant was playing with exceptional skill against the low-level computer-controlled characters. The participant was not informed about a computer-controlled character difficulty change.* After the first round the experimenter came back into the room and let them know that the next two rounds of game play, 5 min each, would be for entries into a drawing for a $100 visa gift card; "one win is one entry and two wins is two entries." [The idea behind the $100 Visa gift card is to give them the motivation to play the game and care about their teammate's performance.]

***Note:** confederates were not instructed to document when they changed the difficulty, so there is no record of how many players had their computer opponent's difficulty changed.

Every participant was randomly assigned to receive an additional explanation about their teammates' situation or not. This is the manipulation for the study. The information was told to the participant after they finished all three rounds of the game and before transitioning back to the computer desk for the post-game questionnaire. The experimenter said:

> "I just got informed that, unfortunately, your teammate has been experiencing technical difficulties with their computer today. The game was lagging and freezing intermittently. There was nothing they could do about it at the time so your teammate just played through it."

The reason "lag" was used as the situational cause to the poor performance of the participants teammate is because it is a common explanation that players give, whether it is happening or not.

Lag refers to the internet connection speed between the gaming device and the server that is hosting the game itself. This can result in very inferior performance, thus explaining a player's behavior. Hardware issues, controller and computer/ console issues, are also a very commonly cited cause. The scripted response read by the experimenter explains that the game connection is been messing up all day and the player's poor performance is due to the lag. The participants in the condition without the external explanation were just told that they would be coming back to the computer desk to finish up the survey.

At the end of the post-test survey the experimenter came back in the room and told the participant that the experimenter at the other university wanted to evaluate their

participants' performance in the game. They also were reassured that their teammate would not see this information. Then all participants answered a fill-in-the bank box in which they were asked to provide honest feedback about their teammate that they just played the game with and to list any adjectives that they would use to describe their teammate.

Measures

Experience playing cooperative games

Each participant was asked about their experience of playing cooperative games with a single item (when playing video games with other people, I play cooperative games) measured on a 1 (never) to 7(always) Likert-type scale.

Participant Skill

The participant also rated themselves on a single item Likert-type scale ranging from 1 (rookie) to 7 (veteran), before the game play that served as a separate measure of participant skill.

Teammate skill

The participant was asked about their expectations of the person they would be playing with for the duration of the study. Before the game to rate their teammate's expected skill on the same scale they rated themselves, 1 (rookie) to 7 (veteran). After the game, the participant was asked to rate their teammate again on the same scale rated in the pre-test survey.

Expectations met

The participant was asked to indicate whether their expectations about their teammates skill was met in a single item ("In this study, my teammate met my expectations") on a 1(disagree) to 7(agree) Likert-type scale.

Teammate perception

This was a 7-item bipolar scale, measuring competence, intelligence, honesty, niceness, motivation, irrationalness, criticalness of others (Velez, 2015). All the items were measured on a 1 to 7 semantic differential scale. With the removal of criticalness of other, the scale alpha was greatly improved (alpha = .844). This could be attributed to the lack of communication between the participants, which could have been confusing as to assessing their teammates criticalness of others.

Locus of control

For the measurement of control, the study implemented three of the ten different subscales from the levels of attribution and change scale (Norcross, 1985). The other seven sub-scales were omitted due to their lack of applicability to video games. Each of the sub-scales posed the question "…problem is partly due to:" and then listed each item. The response options were all measured on a 5-point Likert-type scale (1 = "disagree", 5 = agree). The three sub-scales used from this scale was **Maladaptive Cognitions** ("the fact that I always expect to be perfect."), **Insufficient Effort** ("my lack of will power") and **Bad luck** ("random misfortunes"; Norcross, 1985). These three are the most relevant to the study at hand. For the maladaptive cognitions and the insufficient effort sub-scales,

a mirror sub-scale was created for each item ("my teammates lack of will power"), resulting in a sub-scale pertaining to the confederate they were playing with. The bad luck sub-scale pertains to the general idea of bad luck and not of a specific person, so a mirror sub-scale was not made for that sub-scale. The maladaptive sub-scale was averaged to a single measure (self alpha= .929, teammate alpha= .896). The Insufficient effort sub-scale was averaged into a single measure (self alpha= .846, teammate alpha= .919). Finally, the bad luck sub-scale was averaged into a single measure (alpha= .933; Norcross, 1985).

Adjective thought listing

This measure allowed participants to fill out a free response box with any and all adjectives that they would use to describe their teammate. Each adjective was labeled as positive, negative or neutral. The lead researcher coded the full data set of responses, and a lab assistant coded a random sub-set. The sub-set consisted of 29 participants from the total of 76 participants (38.15%), accounting for 96 adjectives out of the total 247 adjectives (38.86%). Following the methods outlined by Cohen (1960) for nominal data using exactly two coders, this process used Microsoft Excel to calculate inter-coder reliability (Kalpha= .716; Cohen, 1960). This falls in the range described as "substantial agreement" (Landis and Koch, 1977). With this data we made a ratio of negative adjectives by taking the number of negative adjectives and dividing it by the total number of adjectives of a given participant. This is one of the outcome variables for the DV.

CHAPTER III

RESULTS

Hypothesis 1

A linear regression analysis was used to test the predicted linear trend in the expected skill of the participant's teammate of players with naturally varying perceptions of their own skill. The linear regression analysis demonstrated no significant trend between a participant's perceived skill and the skill they expected of their teammate (β = .128; t = 1.492; p > .05). Therefore Hypothesis 1 was not supported.

Hypotheses 2-4

The SPSS macro PROCESS (Model 6) was used to test the direct and indirect effects of perceived self-skill on negative adjectives used to describe their teammate as well as teammate perceptions mediated by expectations met and insufficient effort sequentially. Using a bias-corrected indirect procedure with 5,000 bootstrap samples showed a significant negative indirect effect of players' perceived self-skill and the manifestation of negative behavior in the form of the ratio of negative adjectives to describe the player's teammate (point estimate = 0.01, 95% LLCI = 0.002 to ULCI = 0.02) as well as the perception of that teammate (point estimate = 0.02, 95% LLCI = 0.004 to ULCI = 0.06).

The direct effect of self-skill (X) significantly predicted player expectations met (M1) with a coefficient of -0.23 (t = -2.26, p < .05). Therefore, these results support

hypothesis 2. The direct effect of expectations met (M1) significantly negatively predicts insufficient effort of the teammate (M2) with a coefficient of -0.22 (t = -3.51, p < .001) in each model of the outcome variables. Therefore, these results support hypothesis 3. The direct effect of insufficient effort of the teammate (M2) significantly positively predicts the outcome variables or each model (Y); ratio of negative adjectives with a coefficient of 0.14 (t = 3.84, p < .001) and teammate perception with a coefficient of 0.40 (t = 3.67, p < .001). Therefore, these results support hypothesis 4. **See Figure 3.1 and 3.2 in the appendix.**

Hypothesis 5

For this analysis, the SPSS macro PROCESS (model 7) was used to test the conditional indirect effect of self-skill on the insufficient effort of a teammate mediated by expectations met which is moderated by the experimental manipulation of providing a situation cause to the teammates poor performance or not. The interaction between a player's self-skill and the condition, getting a situational explanation or not, has a significant effect on expectations met with a coefficient of .4582 (t = 2.13, p <.05). The conditional direct effect condition 1 (point estimate = 0.08, 95% LLCI = 0.02 to ULCI = 0.17) was a significant positive effect, whereas the conditional direct effect of condition 2 (point estimate = -0.02, 95% LLCI = -0.08 to ULCI = 0.04) was not. The result of testing the equality of the conditional indirect effects in the two conditions was significant (Index = -0.10, LLCI = -0.023 to ULCI = -0.019). This shows support for Hypothesis 5. **See Figure 3.3 and 3.4 in the appendix.**

Discussion

This study is a look at the toxic behavior of players in an online video game play setting, and how that behavior can be explained by the skill or the player in comparison to their team. By recreating the setting for the cultivation of toxic behavior we hope to understand how exactly it is derived from a wide variety of players. In turn, by finding these underlying causes for toxic behavior we can reinvigorate gaming communities, bringing back players that quit or avoided games based on toxic experiences they might have had. The impact of reducing this toxic behavior is twofold; not only will it help the players go back to the games they love and be able to play new ones without worry, the companies making the games will have a more attractive product that can help them grow their community in a health way. This would be having a friendly helpful community that treats other players with respect to ensure that players keep playing if they want to, and not to quit a particular game because of the player community. Like mentioned previously, Riot games has a division dedicated to the mitigation of toxic behavior, and they have shown only a small percentage of gamers that are toxic are inherently toxic, but the cause of what in these games are triggering an average gamer to become toxic player is still unknown (McWhertor, 2012). This illustrates the need to find what is causing toxic behavior.

Toxic behavior does spiral out of control once it gets started, but we wanted to find out what is that initial jumping off point, where a player starts to go down that route for the rest of the game. We back-tracked down the path of toxic behavior, following its mischaracterization of dispositional factors to explain a player's behavior, leading us to

the fundamental attribution error. In theory, the fundamental attribution error links the action of a poor performance to the over-estimation of dispositional factors attributed to the cause of the behavior. To establish that link, we put players in the situation of a having a teammate with poor performance in order to elicit that fundamental attribution error and continue on to the toxic behavior, sequentially

Another aim in the study was looking at the perceived skill gap between a player and their teammates as a contributing factor to cause the fundamental attribution error. This idea was derived from the breakdown of causality, specifically how "accidental and unintentional" can be seen as a testament to a player's skill, as well as the ideas founded in the bounded generalized reciprocity theory's explanation of a projected expectation onto cooperative persons with a common goal (Mirsadeghi, 2013; Yamagishi, 1999). Participants with a higher perceived skill level should have higher standards of their teammate as well as see the mistakes made by said teammates as a simple task that they should have been able to handle. The violation of these expectations is highlighted with a higher likelihood of making the fundamental attribution error.

Hypothesis 1 was a basic assumption that came from the bounded generalized reciprocity theory. The linear regression analysis results did not support that assumption of reciprocated skill based on the projected expectation of skill from the participant. One possible explanation for this is that some people already know what to expect from playing online games with other people. To check if this had any support, a post hoc analyses was conducted. The relationship between participants perceived self-skill and the teammate expectations they held, outlined in hypothesis 1, was moderated by the

participants previous experience playing cooperative video games. The interaction of self-skill and the experience playing cooperative video games was significant with a coefficient of -0.11 (t = -2.32, p <.05). The conditional effect of self-skill on teammate expectation is shown to be significant at the low level of experience with cooperative games (point estimate = 0.28, 95% LLCI = 0.05 to ULCI = 0.51), but not significant at the at the medium level (point estimate = 0.01, 95% LLCI = -0.08 to ULCI = 0.28) and high level (point estimate = -0.08, 95% LLCI = -0.33 to ULCI = 0.17) of experience with cooperative game. **See Figure 3.5 in the appendix.**

Participants that have less experience playing cooperative video games will have a higher expectation of their teammate as their own perceived skill is increased. The bounded generalized reciprocity theory provided a partial for hypothesis 1. Players do have expectations of others, but only when that player has low experience with playing cooperative online video games. This might be explained by the experience of having expectations previously violated. The players with a lot of experience playing cooperative online video games have already had their expectations violated enough times to know that the projected expectation is a naive expectation to hold. The amount of prior experience with cooperative video games plays an important role for shaping future research.

This study also looked at the nature of attribution errors in the idea of an attributional attack. The fundamental attribution error is a comparison of behavioral causes between the observer and the observed (Ross, 1977). Looking at dispositional factors to explain others behavior is, in a sense, blaming it on them and tainting it with a

negative connotation. In another aspect of the fundamental attribution error, the behavior that is being analyzed is usually a negative one (e.g., poor performance) or else why would we make situational excuses for ourselves and dispositional assumptions about the people around us. In that respect, people who do make these fundamental attribution errors are basing it on negative behavior and results in negative attributes. The results suggest that participants that do make the attribution error will result in more negative adjectives used to describe their teammate. This is shown through the ratio of negative adjectives to the total number of adjectives used to describe their teammate.

The results from analysis conducted for hypothesis 2-4 showed that teammate perceptions were significantly predicted as an outcome of the perceptions of self-skill when mediated by expectations met and insufficient effort of a teammate. When playing cooperative online video games, a player's perceived skill significantly negatively affects the expectations met when playing with a low skilled teammate. The higher the perceived skill of a player the more the teammate of a low skill level violated those expectations. The expectations met significantly negatively affects the perceived insufficient effort on the part of the teammate. The violation of expectations resulted in more blame of the teammate's effort. The insufficient effort significantly and positively affected the outcome of the negative adjective ratio as well as the teammate perception. The more the player blamed their teammates insufficient effort, the more negative the adjectives were to describe their teammate and the lower the teammate perception was. This is important because the items of the teammate perception scale use general attributes that are outside the context of the game played or any video game. They are real life attributes that are

describing the player behind the digitally rendered character they are playing. Showing that these attributes of teammate perception are significantly predicted supports the fundamental attribution theory and taking that one step further, like mentioned by the body of literature about the manifestation of toxic behavior (Blackburn, 2014; Foo, 2004; Kwak, 2015), then the less prosocial behavior found by Velez (2015).

This issue of Toxic behavior has been a blight in the gaming community. People label entire games as having a toxic community, and, as Riot games pointed out, there are definitely those out there that will be toxic no matter what (McWhertor, 2012). But for those of us that are not inherently toxic and don't always just think a person's short comings are due to some attributional inadequacies, this study offers us an explanation by showing that there is something triggering players to become toxic. Something in the game that we observe that changes a normal person into that person no one wants to play with. Another important distinction that comes with the fundamental attribution error is the "accidental and unintentional" category (Mirsadeghi, 2013). With external causes for a teammates poor performance, such as lag or hardware issues, they are unintentional and cause accidents, but a majority of the time they are not just one off, isolated incidents, as described by Mirsadeghi (2013). This can lead the observer to think the behavior is intentional and/or a sign of a depositional factor leading to the behavior, as well as the more it happens, the more egregious the use of negative attributes to describe behavior could become. All of this also implies that there is some way to mitigate this toxic behavior, as described in the fundamental attribution literature. If we can push the participant to look past the default settings of observation, and take into account things

that all gamers have experienced, like lag, then we should be able to help mitigate the fundamental attribution error (Tetlock, 1985).

Limitations and future directions

In the current study, despite the computer controlled characters being at the lowest difficulty setting, the game was still too hard for some of the participants. The lack of pre-screening the participants for at least a basic understanding of video games was an oversight and should be addressed in future studies. It can still be a wide variety of skill levels like the current study, but it will restrict the people that have never played video games before out of the study.

Another issue with the study was the small number of participants. A larger sample size would provide more data for a much more robust study, but due to recruiting complications and a short time frame, the number of participants that we were able to get into the lab was minimal.

The manipulation used for the situational behavioral explanation was rather weak. There might not have been enough manipulation to make the participant understand that their teammate was having issues. With the confederate playing poorly the whole 15 min of game play, the participant's frustration, when it happened, was just too much for a few fleeting sentences of explanation, and they may not have cared. This could be due to the fact that the manipulation was implemented after the game was played. To remedy this, moving the manipulation to precede the game play might make the manipulation stronger. Also moving to some sort of real-time viewing of their teammates game, like a

video feed, would help a lot if we could simulate the situational behavioral causes. Another way to do it would also be to introduce voice communication to the study and allow the confederate to explain in real time while the game is going on that something is wrong with his game. This might be a much stronger manipulation and allow the participant to become further immersed in the gameplay.

This study just began to unlock the why of toxic behavior, but there is still much more to do. Participants were led to believe that the feedback about their teammate and the adjective thought listing task where for the researcher's eyes only, meaning they could be honest without the worry that their teammate would ever read their responses. This is a flaw in the study because it doesn't actually measure toxic behavior, but the aim at the study was to understand the participants true feelings about the person they just played with. This gives us a much more accurate response by diminishing moral concerns. A future study down this line of toxic behavior research should examine the current study's procedures, and weather they elicit toxic behavior towards a teammate when the moral concerns are outweighed.

A future direction of this research would be to look at the magnitude of the fundamental attribution error. Following the breakdown of Heider's model, there are three categories of "assumed situational, unintentional and accidental and personal behavior traits" (Mirsadeghi, 2013). Two out of the three of these are explained to be situational rather than internal, and devoid of the notion that it is human nature to look at the actor first. One would assume that with those odds, a cause is more likely to be situational than dispositional (Mirsadeghi, 2013). With the unintentional and accidental,

the reason Mirsadeghi (2013) has this as situational is because it is thought of as an isolated event, not to be repeated. Due to the nature of online game play, which is mostly snapshots of time with any given random player, we don't have the ability to see if other players mistakes are repeated from game to game. We must make a quick judgment about the person in a rather small amount of time. And If they do repeat their mistakes with that small window of being on the same team, then it is really stacked against them. Because of this, the category of unintentional and accidental is intertwined with perceived skill, which, in this context, would make it more of a dispositional category than a situational category. Following this logic, within the online video game world, players are even more likely to succumb to the fundamental attribution error than in other situations outside of video games. Another study could continue off of the current findings and look at measuring severity, the more mistakes/ accidence observed combined with any observed personal behavior traits, the more game players are going to default to a dispositional explanation for this behavior.

Conclusions

Video games are one of the fastest growing entertainment industries in the world, aggregating more players each and every day. With more people playing video games than ever before, the number of multiplayer online video games is in constant proliferation. These games will never die out and communities around them will be built. Understanding the social dynamic of cooperative online video games is essential to creating games that will have thriving, positive community and grow over time. To understand how to build a positive community we must understand how communities

have become toxic in other instances and how to mitigate this toxic behavior. This study has taken a sliver of the necessary steps to fully understanding this path to future of the video game industry. The current study has replicated the findings of Velez's (2015) experiment on pro-social behavior. There is support, in the current study, for the idea that the bounded generalized reciprocity theory (Yamagishi, 1999) lead to expectations that if violated, could lead to less pro-social behavior and negative behavior. This is important to show that players with the goal of winning a video game expect their teammates to reciprocate skilled contribution to the effort of winning the game. The current findings show that when that expectation is violated, players resort to the default setting of analyzing behavior, the A branch of the Fritz model of attribution theory (Heider, 1944), resulting in using more internal explanations for the behavior, the fundamental attribution error. The fundamental attribution error drives the selection of adjectives used to describe each participant's teammate which was negative in nature, deemed toxic behavior. This outlined the process of how a player becomes toxic, looking at the chain of events that leads a normal player to possible become toxic.

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APPENDIX

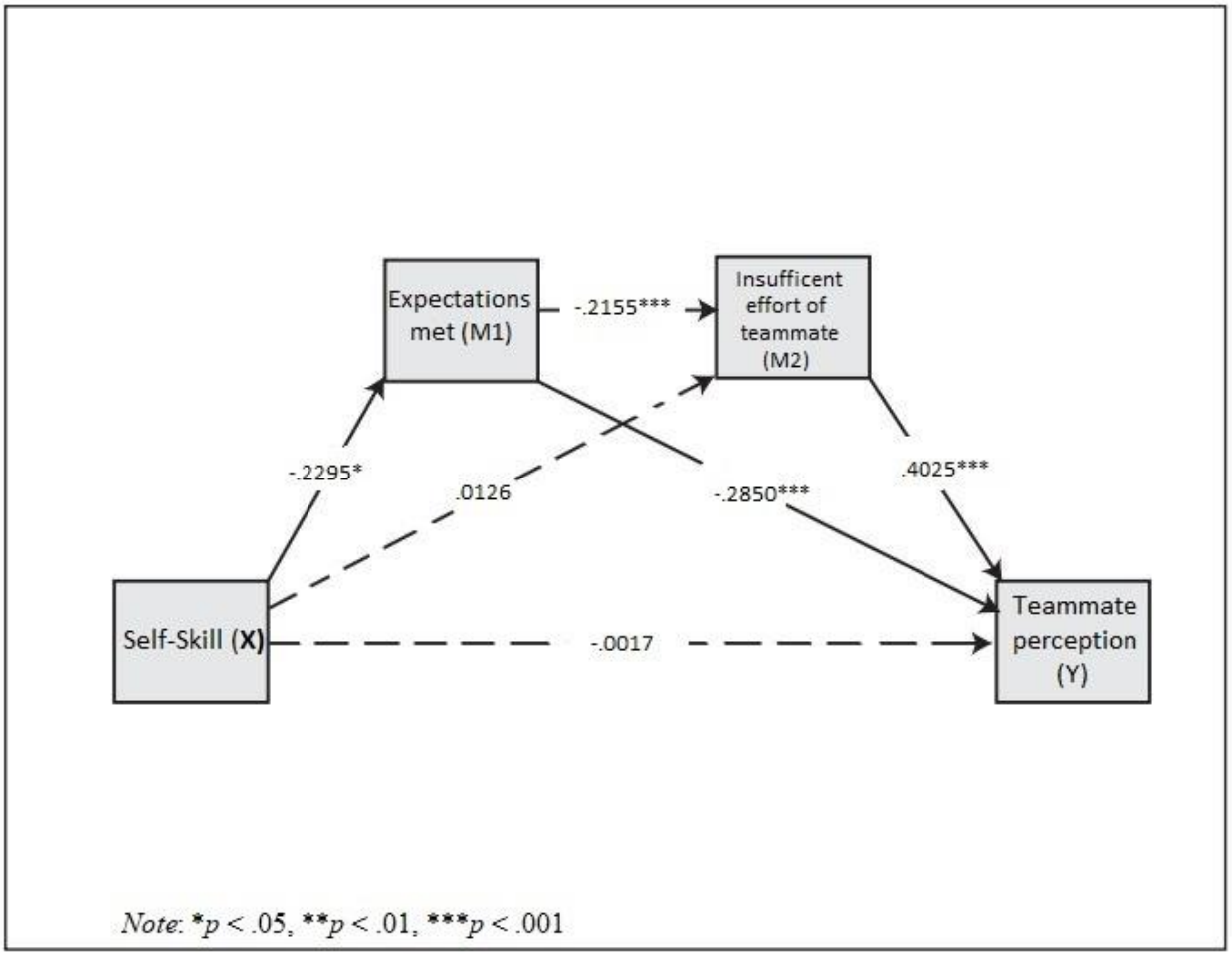

Figure 3.1 Process Model 6: Serial mediation showing the indirect effect of self-skill on teammate perception through expectations met and insufficient effort of their teammate.

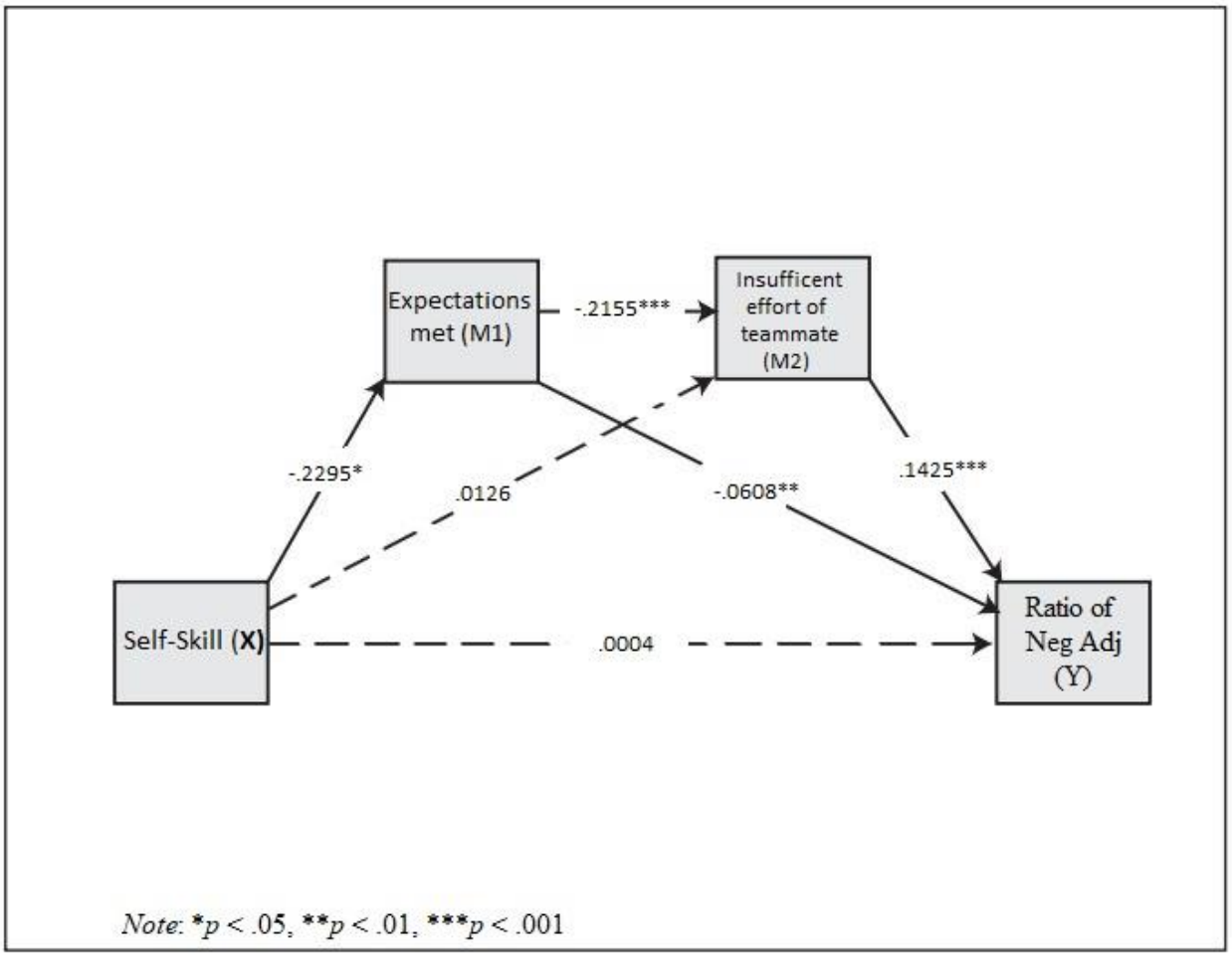

Figure 3.2 Process Model 6: Serial mediation showing the indirect effect of self-skill on negative adjective ratio through expectations met and insufficient effort of their teammate.

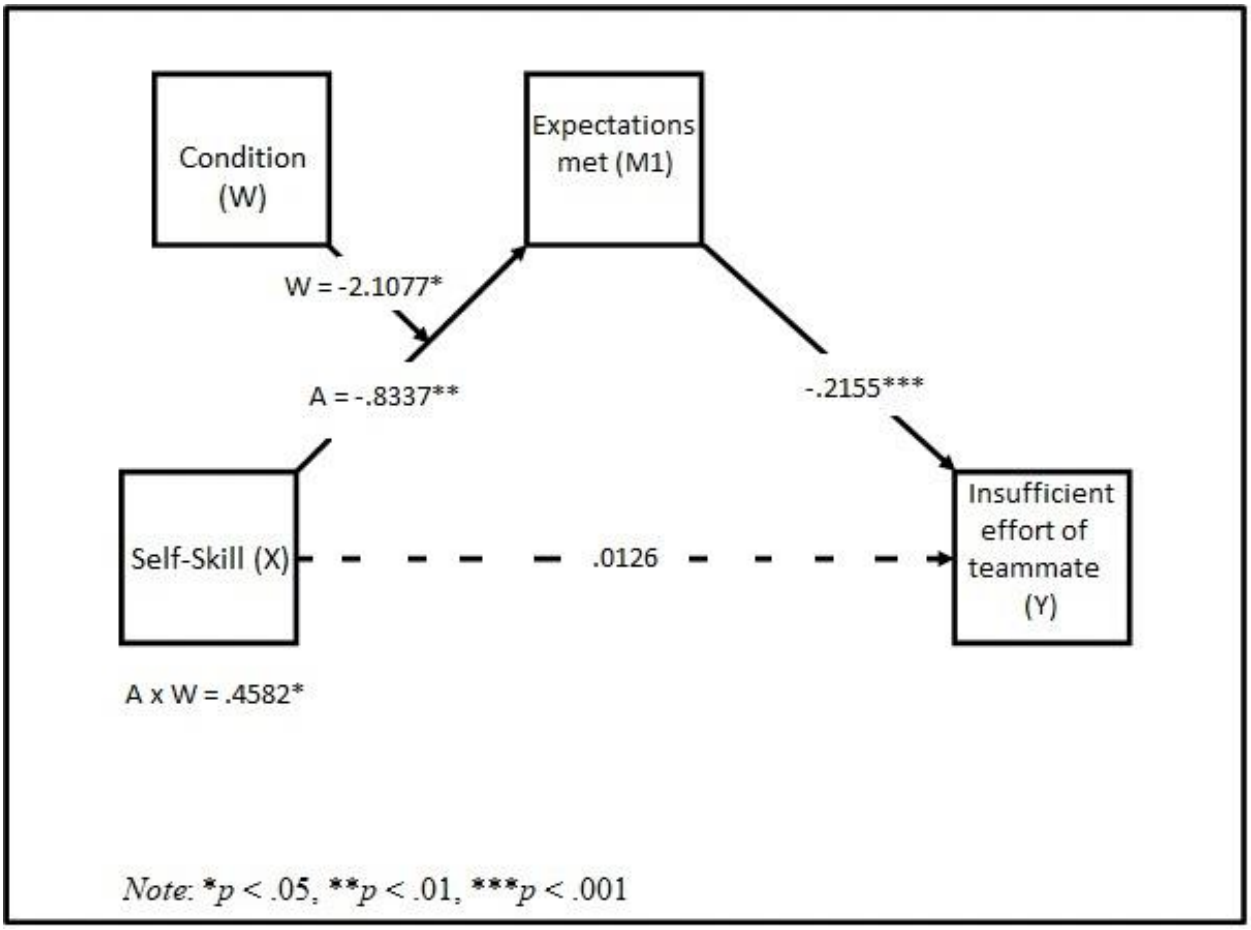

Figure 3.3 Process Model 7: Moderated mediation showing the indirect effect of self skill on insufficient effort of their teammate through expectations met which is moderated by condition.

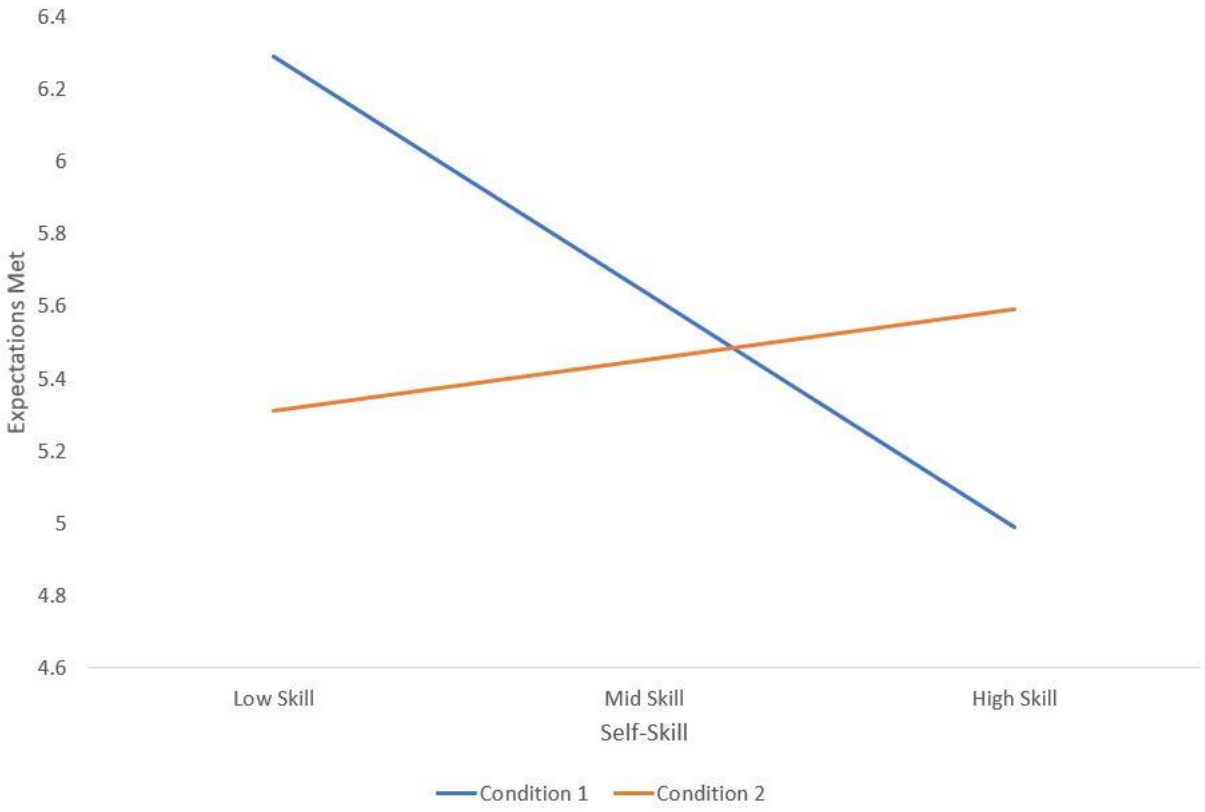

Figure 3.4 Interaction between self-skill and condition on expectations met.

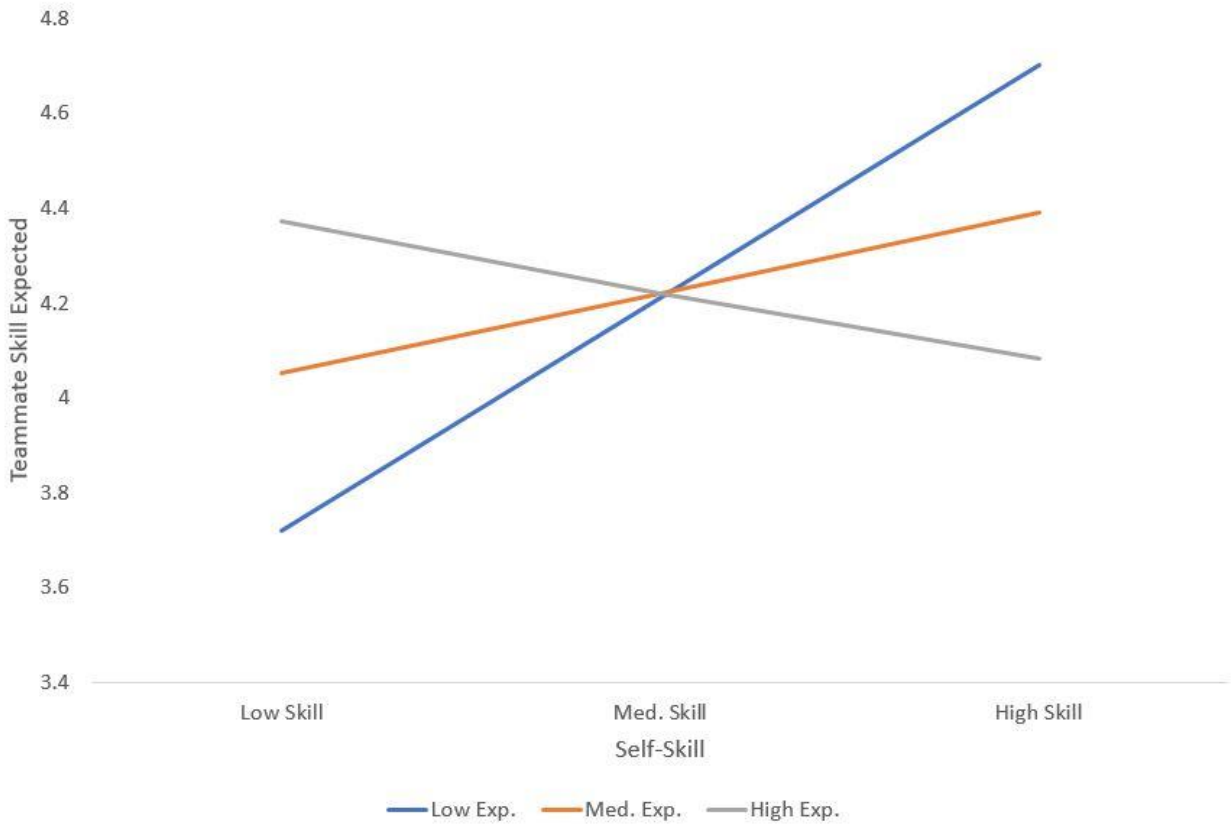

Figure 3.5 Interaction between self-skill and experience playing cooperative online games on teammate skill expected.