

NEED FOR AFFILIATION UNDER THREAT IN
THE CONTEXT OF HORROR VIDEO GAMES

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ABSTRACT

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Research suggests that people favor playing violent video games cooperatively with others. However, little is known about the reason behind people's desire to play cooperatively. Previous research has demonstrated that perceived threat to the avatar can increase the need for affiliation (Velez *et al.*, unpublished data). The current study replicates and extends previous research by using a horror game, *Phasmophobia*. 559 American adults above 18 who have previous experience with video games were assigned to watch one of the four video clips of horror game play, taking the role of an avatar. The current research tested the hypothesis that direct violence to the avatar will result in higher level of threat relative to the avatar being in a threatening situation. The results suggest that perceived threat to the avatar increased participants' need for affiliation. Also, participants who experienced direct violence to the avatar reported more threat than those whose avatars were in a threatening situation. Additionally, participants who thought their avatar was playing in a group reported higher levels of needs for affiliation. Finally, higher levels of need for affiliation increased participants' desire to play video games with others but it did not predict an increased desire to play alone.

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This thesis is dedicated to Mom and Dad who always gave me full support, and Dr. Dave Ewoldsen and Dr. John Velez who have guided me throughout the study. Thank you for always believing in me.

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INTRODUCTION

Extensive research demonstrates that playing violent video games increases aggressive thoughts, cognitions, and behaviors while decreasing prosocial behavior (Anderson & Bushman, 2001). Also, research suggests that exposure to violent video games increases physiological arousal such as heart rate, blood pressure, and skin conductance (Anderson *et al.*, 2010; Anderson & Bushman, 2001). However, most studies of violent video games have focused on single players regardless of how games are played these days (Velez & Ewoldsen, 2013). In contrast to the early research on violent video games, research suggests that nowadays players not only prefer to play multiplayer video games to any other style of play in video games but also play cooperatively with other players (Velez & Ewoldsen, 2013; Velez *et al.*, 2014), particularly against a common opponent (Ewoldsen *et al.*, 2012; Kutner & Olson, 2008). An increasing number of studies have begun to underscore the social aspects of video games which have become a source of enjoyment and motivation for players (Cole & Griffiths, 2007; Peña & Hancock, 2006; Velez & Ewoldsen, 2013). For example, players form positive relationships during cooperative video game play (Kutner & Olson, 2008; Olson, 2010). As a result, social video game play has set a new standard of how players enjoy playing video games these days. However, little is known about why players like to play cooperatively despite the detrimental effects of violent video games. Specifically, it seems contradictory that people would want to play violent video games with other people, if the playing the games increases arousal and hostility. Therefore, the proposed study questions why people would want to play violent video games cooperatively even though playing violent games increases aggression-related affect and hostility.

LITERATURE REVIEW

The General Aggression Model proposes that two types of input variables can influence aggression: personal and situational variables (Anderson & Bushman, 2002). Personal variables include anything the individual brings to the situation (i.e., gender, genetic predisposition, personality traits, attitudes, beliefs, values). Situational variables include all external factors that can influence aggression (i.e., violent video games, alcohol, provocation, hot temperatures, frustration, and aggressive cues). In the model, personal and situational factors influence one's internal state, such as aggressive thoughts, angry feelings, and physiological arousal levels. These internal states are all interconnected. If people feel angry and have aggressive thoughts, or are physiologically aroused, it is likely they will behave in an aggressive manner. Additionally, the model states violent video games not only have short-term effects, but also have long-term effects due to repetitive exposure.

The GAM addresses extensive evidence of the predictability of increased aggression and other related aspects caused by violent video game play. For instance, violent video game play increases aggressive thoughts (Anderson & Dill, 2000). People who had played violent video games were more likely to display a hostile expectation bias, which is the tendency to interpret others' harmful actions as intentional rather than accidental (Bushman & Anderson, 2002). Also, playing violent video games increases aggressive affect such as state hostility and anxiety levels (Anderson & Ford, 1986). Individuals with high trait-level hostility showed greater increases in stress level than those who are low in trait hostility (Lynch, 1999). Research has confirmed a positive relationship between stress and playing violent video games by analyzing players' voice stress (Hasan *et al.*, 2013; Hasan, 2017). Lastly, playing violent video games increases aggressive behavior. A longitudinal study of effects of violent

video games on aggression in adolescents demonstrated that children who played more violent video games in the early days of school became more aggressive later (Anderson *et al.*, 2007). Meta analyses concluded that playing violent video games substantially increases physiological arousal and aggression-related affects, thoughts, and behaviors (Anderson *et al.*, 2010; Anderson & Bushman, 2001). In addition, exposure to violent video games is negatively associated with prosocial behavior (Anderson *et al.*, 2010).

Past research on the negative effects of violent video games utilizing the GAM has typically focused on single players who are isolated during game play (Anderson *et al.*, 2010). Isolated players can solely focus and engage with the violent content of violent video games which leads to the learning and activation of aggressive scripts (Velez *et al.*, 2016). However, this overlooks the social context of video games. Research suggests that social interactions and the relationships that occur during cooperative video game play appear to serve a greater role in shaping players' subsequent behaviors than the content of violent video games (Jerabeck & Ferguson, 2013; Velez *et al.*, 2016). For example, Velez (2015) suggests that players' behaviors during social video game play can affect expectations of reciprocal behaviors between teammates which impacts subsequent behaviors. In other words, playing video games with a helpful teammate can reinforce the expectations of in-group members to reciprocate prosocial behavior and lead to subsequent prosocial behavior among team members (Velez, 2015). Moreover, cooperative social interactions during the play of violent video games can increase players' prosocial behaviors and decrease aggression compared to people played the violent video game alone (Velez *et al.*, 2016). Likewise, playing a violent video game cooperatively can decrease players' subsequent aggressive behaviors to levels similar to people who are not exposed to violent video games (Velez *et al.*, 2016). These

attenuating effects of cooperative video game play on violent video game player's subsequent aggressive and prosocial behavior may be the result of increase in reciprocity expectations or trust norm (Velez *et al.*, 2016).

These findings indicate that cooperative video game play reduces the detrimental effects of violent video games on aggressive thoughts (Schmierbach, 2010; Velez, Mahood, Ewoldsen, & Moyer-Guse, 2014), feelings (Eastin, 2007), and behaviors (Velez *et al.*, 2016) while increasing prosocial behaviors (Ewoldsen *et al.*, 2012; Greitemeyer & Cox, 2013; Greitemeyer *et al.*, 2012; Velez *et al.*, 2014; Velez *et al.*, 2016). Thus, violent video game play in a social context underscores the dynamic social interactions among players. However, a major question is yet to be asked why players would prefer to play cooperatively in the first place given the research suggesting violent video games increase arousal which should lead to hostility during gameplay.

Affiliation Motivation in the Context of Video Games

It has been known that playing violent video games increase physiological arousal (Anderson & Bushman, 2001). Then, why do aroused players favor playing violent video games cooperatively with others? Research suggests that arousal leads to anxiety and subsequently a drive-like motivation for affiliation (Byrne, 1961; Y. Teichman, 1973). Specifically, arousal is positively correlated to the desire to affiliate with others when followed by both ego-threat and physical threat (Y. Teichman *et al.*, 1982; Fay & Maner, 2015). Furthermore, Taylor (2006) proposed and tested a biobehavioral model that states oxytocin, a type of hormone, is released in threatening or stressful situations and concurrently prompts affiliative behavior. Especially, affiliation need was higher among threatened individuals (Taylor *et al.*, 1992). Moreover,

research suggests that fear, an emotional response to “concrete and sudden danger of imminent physical threat” (Lazarus, 1991, p.234), goes along with physiological arousal such as increased heart rate or increased respiratory rate (Kreibig *et al.*, 2007; Lin *et al.*, 2018). Therefore, these findings suggest that people may prefer playing violent video games cooperatively because anxiety, fear, or threat can drive people’s fundamental motivation to affiliate with others. According to self-determination theory (SDT), one of the most prevalent theories of human motivation, humans are fundamentally driven to fulfill one of the three basic psychological needs – need for affiliation, a motive to be connected to others (Ryan & Deci, 2017).

A recent research conducted by Velez et al. (unpublished data) examined players’ affiliation motivations in the context of a violent video game. In the study, participants viewed either first or third-person game play. They were asked to imagine they were the players of the game while watching a 5-minute video of game play. The video clips included three different game play situations: under threat (the avatar being killed); no threat (the avatar gambling); provoking threat (the avatar kills other avatars). The findings suggest that participants who took the role of the avatar in a violent video game were aroused and displayed affiliation needs during the exposure to the video game clips. Importantly, participants felt as if they were in the video game and identified with the avatar.

This proposed study replicates and expands the previous research from Velez et al (unpublished data) on the need for affiliation based on threat in the context of video games. In contrast to the use of shooter/role-playing game (RPG) in the prior study, the current research used a different genre of video games, *Phasmophobia*, a horror/adventure game. One goal of this study was to test whether mediated fear or fright generated in horror games plays a similar

role as the perception of threat in violent video games. Fear is defined as “a multidimensional reaction composed of immediate emotional and subsequent cognitive responses to a perceived threat” (Lynch & Martins, 2015, p.299). Horror games also generate suspense, which is produced by various elements such as darkness and lack of clues where threat will appear and heightened by the uncertainty of future threats (Lin *et al.*, 2018). If so, it seems reasonable that both horror games and violent video games will produce similar increases in threat and then motivations to affiliate despite the difference in genres. Demonstrating the same processes occur across these different genres would increase the generalizability of this line of research. Moreover, the current study examines the need for affiliation not only when the avatar explores alone but also when the avatar is with other teammates. Based on the previous finding that threat increases players’ affiliation motivations, it seems reasonable that playing a horror game alone will produce high need for affiliation in contrast to playing cooperatively with others will decrease affiliation motivation. The findings of this question can help explain whether higher need for affiliation predicts players’ preferences in playing violent video games cooperatively with others in the future relatively to solo and competitive game play.

CURRENT RESEARCH

Recent research conducted by Velez et al (unpublished data) suggests that cooperative game play addresses the need for affiliation motivated by threat that is experienced when playing a violent video game. Because mediated violence during video game play has shown the same activation pattern of a brain part as engagement in actual violence (Mathiak & Weber, 2006) and game avatar reflects the player’s behavior (Peña, 2011), the player should experience threat when the avatar is threatened (Velez et al, unpublished data). Based on the findings, the

proposed study explores players' affiliation motivation in the context of a horror game as fear or fright produced by horror games is closely associated with the perception of threat. Particularly, the current research aims to determine if a player (taking the role of an avatar) demonstrates the need for affiliation when the avatar is alone but also when the avatar is with others. Additionally, the current study asks players how they want to play violent video games in the future, guided by the need for affiliation. This leads to the first hypothesis:

H1: Perception of threat to the avatar increases need for affiliation

Phasmophobia is a four-player online cooperative game in which players team up as paranormal investigators and explore haunted locations filled with paranormal activities. Within the game, it is most likely that players not only face threat but also (the avatar) could eventually die from the ghost's attack. The ghost starts off intimidating (i.e., turning off lights) players and slowly progresses to ultimately become corporeal, seeking to kill a player. The killing of an avatar can prevent players from winning the game. Considering the game is configured in a way that the ghost is invincible, and players are consistently vulnerable to the ghost, I thereby hypothesize: H2: Direct violence to the avatar will result in higher level of threat relative to the avatar being in a threatening situation

Finally, based on H1 and H2, current research examines if participants would experience lower levels of need for affiliation when the avatar is playing with others in a group than playing alone. I thereby hypothesize:

H3: Being under threat when taking a role of an avatar with others will decrease need for affiliation in comparison to playing alone

Lastly, current research assumes that threatened players are inherently motivated to play violent video games cooperatively with others and people would experience perceptions

of threat while playing a violent video game. Also, physiological arousal such as threat, anxiety, or fear addresses the need for affiliation. If so, it seems reasonable that threat or fear generated by the horror game used in this study will increase a player's affiliation motivation. The proposed study questions if higher need for affiliation predict desire to play cooperatively in the future relatively to play alone or competitively. Therefore, this study proposes a research question:

RQ1: How would people with higher levels of need for affiliation want to play violent video games? With others or alone?

METHOD

Design and Participants

This study uses a 2 (Game condition: Solo vs. Cooperative) $\times$ 2 (Perceived threat vs. Direct violence) between-subjects design to test players' desire for affiliation under threat. 559 American adults above 18 who have prior experience with video games are randomly sampled to participate in the study. Participants are asked to imagine they were players of the game and watch four video clips of 5-6-minute, first-person video game play of *Phasmophobia*. The researcher played and recorded all the video game clips that appeared in the current study. The videos were edited so that they are as consistent as possible in all four conditions. In exchange for their participation, participants are paid per their agreement with Dynata as an appreciation for being involved in the study. Participation in this study is voluntary and participants may refuse to take the survey or quit at any time without penalty (data will be deleted from the analysis). There was an attention check within the questionnaire to validate the data provided by the participants. Data provided in this study is confidential and any information regarding

participants was not collected. The research was approved by the Institutional Review Board for the university.

Procedure and Manipulation

Participants were asked to participate in an online survey where they completed the informed consent, indicated by an agreement to complete the questionnaire. The survey was accessed and completed on Qualtrics. Then, participants completed a pre-test questionnaire measuring their video game habits and trait need for affiliation. The items within each scale were randomly ordered. After completing the scales, participants were randomly assigned to watch one of the four gameplay videos. Participants were given instructions for which type of gameplay they were given and that the content may be gory and graphic.

The video game used in the study is *Phasmophobia*, a first-person, multiplayer horror game. A horror game which falls into the category of violent video games was used to increase generalizability. *Phasmophobia* provide players immersion with realistic graphics and interactive sounds. In this game, players (the avatar) take the role of urban ghost hunters, who actively seek out for paranormal activities in different abandoned facilities such as homes, schools, and hospitals. The objective of the game is to discover which type of ghost the players have encountered, collect evidence, and eventually get paid at the end of each mission.

In the *Solo – Low Threat* condition, participants were told that they will be watching a single-player video game play of *Phasmophobia*. They viewed the character's perspective and took the role of the character. Participants were informed that they may encounter the ghost, but it will not harm them. In the *Solo – High Threat* condition, participants were told that they will be watching a single-player video game play of *Phasmophobia*. They viewed the

character's perspective and took the role of the character. Participants were informed that the avatar will be very careful when seeking and gathering evidence because the ghost is very active and aggressive. Importantly, they were warned that there is a high chance of the avatar dying. This condition was manipulated so that participants will watch their avatar die.

In the *Group – Low Threat* condition, participants were told that they will be watching a multiplayer video game play of *Phasmophobia*. They were informed that the character will be playing with a group and participants will view the game play from one of the character's perspective and take the role of that character. Participants were told that they may encounter the ghost, but it will not attack them. In the *Group – High Threat* condition, participants were told that they will be watching a multiplayer video game play of *Phasmophobia*. They were told that the avatar will be playing with others as a group, and they will be viewing one of the character's perspective and take the role of that character. Participants were informed that the ghost is aggressive and there is a high chance of the avatar dying.

The manipulation of four videos were assessed by asking participants to complete questionnaire about perceived threat to the avatar and the self, self-reported arousal, Inclusion of Other in the Self (IOS), State Need for Affiliation and game play behavior and preference.

Measure

At the beginning of the survey, participants completed a questionnaire about their game playing behavior (see APPENDIX A). Sample questions include asking participants to answer the numbers of hours per week he or she plays video games, their game skills, and basic demographic questions. Also, questions including participants' reasons for playing video games and their preference in game play (solo vs. group) will provide information regarding the social context within the game play.

Trait Need for Affiliation. Participants are asked to answer a series of pre-game questions that measures players' affiliation motivation (nAff) (Hill, 1987). The scale is consisted of 21 items, and it examines players' trait need for affiliation (nAff) in four dimensions: emotional support, positive stimulation, social comparison, and attention (see APPENDIX B). *Emotional support* ($\alpha = .92$) included one of the following examples: "I usually have the greatest need to have other people around me when I feel upset about something". *Positive stimulation* ($\alpha = .89$) included one of the following items: "I seem to get satisfaction from being with others more than a lot of other people do". One of the items from *social comparison* ($\alpha = .87$) scale include "I find that I often look to certain other people to see how I compare to others". Lastly, *attention* ($\alpha = .94$) includes one of the following questions: "I like to be around people when I can be the center of attention". All 21 items were on a 5-point scale (1 = "Not at All True," 5 = "Completely True").

State Need for Affiliation. Participants were asked to answer the identical set of questions from *Trait Need for Affiliation* after the exposure to game play videos. *State Need for Affiliation* was measured during the game play. All questions start by stating "If I was playing that video game" to examine the change in need for affiliation ($\alpha = .98$).

Interpersonal Orientation Scale (IOS). One diagram was used to assess participants' connectedness to the avatar (See Figure 1 below). IOS provides an understanding of participants' role-played behavior (Aron *et al.*, 1992). The diagram includes seven pairs of circles that range from just touching to almost entirely overlapping. One circle is labeled "self" and the other circle is labeled "video game character". Participants were asked to choose one of the seven pairs to answer the question "which pair best represents the

relationship between the “self” and the “video game character” in a 7-point scale (1 = no overlap, 7 = most overlap).

Solo vs. Group Play Preference. Participants completed a set of five items about how they want to play a video game after the exposure to the game play videos (i.e., I would like to play the video game with others in person). All five items were on a 5-point scale (1 = “Not at All True,” 5 = “Completely True”).

Threat. To measure *threat*, one 7-point Likert Scale consisting of five items was used to assess participants’ perceived threat to the avatar ($\alpha = .86$). Also, a 11-point semantic differential scale from the previous research was used to measure participants’ perceived threat to the self (Velez *et al.*, unpublished data) ($\alpha = .95$). The scale included the following items: I feel fearful, afraid, scared, tense, frightened, anxious, and uncomfortable.

Arousal. A total of 18 items were used as a measure of self-reported arousal after watching video game clips. The items were taken and modified from the Perceived Arousal Scale (Anderson *et al.*, 1995) and were measured on a 9-point semantic differential scale. Among these, five items were measured to assess *arousal*. They include the following adjectives: Excited, frenzied, jittery, wide awake, and aroused ($\alpha = .82$). Five measured items were recoded so that right polar adjectives defined *arousal*.

Attention Check. Participants answered one question that asked: “In the short video clip, what location did the video game character go?”. If they did not pick “A log cabin/farmhouse” they were immediately removed from the survey. Other incorrect answers included: “A skyscraper”, “An apartment”, “A modern mansion”.

Manipulation Check. To assess the success of the experimental manipulation, participants answered two multiple choice questions (“In the video clip you watched, with

whom did you play with?”, “How threatening was the video clip of gameplay you watched?”). Each question included two answers (“Nobody, I played solo”, “I played with others as a group”; “Nothing happened – I survived the game”, “I was killed at the end”) that match with which random video participants watched. If participants failed to match the video they watched and the correct answers, they were immediately removed from the survey.

To assess whether manipulation of *threat* was successful or not, participants answered an 18-item Perceived Arousal Scale. The questionnaire asked participants to rate their feelings by checking close to the adjective (i.e., excited or calm; jittery or dull) which they believe describe their reactions while thinking about the scenarios of the game.

RESULTS

Stepwise regression was used to test Hypothesis 1 that perceived threat to the avatar increased state need for affiliation. Trait need for affiliation was entered in the first step as a control to ensure that effects were due to changes in participants' state need for affiliation (see Table 1 for results of the stepwise regression). Trait need for affiliation was a significant predictor of state need for affiliation, $R^2 = .68$, $F(1, 524) = 1,091.17$, $p < .001$. The second step added perceived threat to the avatar. Perceived threat to the avatar was a significant predictor of state need for affiliation, $\Delta R^2 = .01$, $F(1, 523) = 16.19$, $p < .001$. The results of this analysis support Hypothesis 1. Perceived threat to the avatar predicted state need for affiliation after controlling for trait need for affiliation.

Hypothesis 2 predicted that participants would experience higher levels of perceived threat toward the avatar when game play involved direct violence compared to the possibility of violence. This hypothesis was tested using a 2 (high threat vs. low threat) X 2 (playing alone vs. playing together) analysis of variance (ANOVA). There was a significant main effect of threat such that participants in the high threat condition perceived more threat to the avatar ($M = 4.78$, $SD = .75$) than participants in the low threat condition ($M = 3.92$, $SD = .97$), $F(1, 522) = 81.81$, $p < .001$, $\eta^2 = .16$. The main effect of play condition was not significant. Participants who were in the condition where they played alone did not report more threat ($M = 4.12$, $SD = .94$) than participants who played in the group condition ($M = 4.31$, $SD = 1.04$), $F(1, 522) = .28$, $p > .55$, $\eta^2 = .001$. Finally, the interaction between threat condition and play condition was not significant, $F(1, 522) = .41$, $p > .50$, $\eta^2 = .001$.

Hypothesis 3 predicted that participants would experience lower levels of state need for affiliation when they thought they were playing with a group than playing alone. This

hypothesis was tested using a 2 (high threat vs. low threat) X 2 (playing alone vs. playing together) analysis of covariance (ANCOVA). Trait need for affiliation was entered as a covariate to ensure that any effects were due to changes in state need for affiliation. Trait need for affiliation was a significant covariate, $F(1,554) = 1,234.87$, $p > .001$, $\eta^2 = .69$. Contrary to predictions, the main effect for playing alone vs. in a group was marginally significant such that participants who thought they were playing in a group experienced higher levels of affiliation ($M = 2.65$, $SD = 1.14$) than those who thought they were playing alone ($M = 2.49$, $SD = 1.13$), $F(1, 554) = 3.04$, $p = .08$, $\eta^2 = .005$. The main effect of threat was not significant, $F(1,554) = 1.00$, $p > .30$, $\eta^2 = .002$. The interaction between play and threat was marginally significant, $F(1, 554) = 3.21$, $p = .07$, $\eta^2 = .006$. The means for the interaction can be found in Table 2.

Finally, the research question asked whether people would want to play video games together or alone if the threat that was experienced while playing a video game increased people's need for affiliation. This research question was answered by conducting two serial mediations using the PROCESS Macro for SPSS (Model 6; Hayes, 2017).

The first model tested whether perceived threat to the avatar lead to perceived threat to the self which increased need for affiliation which finally predicted the desire to play video games with others (see Figure 1). Four measures were used in the mediation models: perceived threat to the avatar, perceived threat to self, state need for affiliation and desire to play with others. The perceived threat to the avatar subscale consisted of 6 items ($\alpha = .79$), the perceived threat to self, consisted of 6 items ($\alpha = .95$), State Need for Affiliation subscale consisted of 21 items ($\alpha = .98$), and desire to play with others subscale consisted of 5 items ($\alpha = .90$). Trait need for affiliation and players baseline desire to play with others were entered as

covariates. To test whether threat resulted in an increased need for affiliation and then an increased desire to play with others, the first step of the mediation model testing whether perceived threat to the avatar predicted perceived threat to the self was significant, $b = .78$, 95% CI [.55, 1.02]. In the second step of the mediation model, perceived threat to self was a significant predictor of state need for affiliation, $b = .07$, 95% CI [.06, .09]. In the final step of the serial mediation model, state need for affiliation significantly predicted the desire to play video games with others, $b = .59$, 95% CI [.49, .69]. These findings indicate that perceived threat to the avatar did predict an increase desire to play video games with others, mediated by perceived threat to the self and then state need for affiliation. The direct path from perceived threat to the avatar to the desire to play video games with others was not significant, $b = -.01$, 95% CI [-.07, .05]. This later finding indicates the effect of perceived threat to the avatar on desire to play video games with others was completely mediated by perceived threat to the self and state need for affiliation.

The second model tested whether perceived threat to the avatar lead to perceived threat to the self which increased need for affiliation which finally predicted the desire to play video games alone (see Figure 2). Desire to play alone was measured by a single item (The question asked participants' preferences for playing the video game alone, not including online with others). Trait need for affiliation and players baseline desire to play alone were entered as covariates. To test whether threat resulted in an increased need for affiliation and then an increased desire to play with others, the first step of the mediation model testing whether perceived threat to the avatar predicted perceived threat to the self was significant, $b = .83$, 95% CI [.59, 1.07]. In the second step of the mediation model, perceived threat to self was a significant predictor of state need for affiliation, $b = .08$, 95% CI [.06, .10]. In the next step of

the model, state need for affiliation did not predict the desire to play video games alone, $b = .08$, 95% CI $[-.12, .07]$. These findings indicate that perceived threat to the avatar did not predict an increase desire to play video games alone, mediated by perceived threat to the self and state need for affiliation. The direct path from perceived threat to the avatar to the desire to play video games alone was also not significant, $b = -.01$, 95% CI $[-.14, .12]$. Together, these findings from this mediation model suggest that state need for affiliation that was activated by perceived threat to the self did not increase players' desire to play video games alone.

Table 1: Stepwise Regression for Effect of Threat on State Need for Affiliation (Hypothesis 1)

Predictor	State Need for Affiliation	
	<i>B</i>	ΔR^2
Step 1		.67***
Trait Need for Affiliation	.94***	
Step 2		.01***
Trait Need for Affiliation	.90***	
Threat to NPC	.12***	

Notes: * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 2: Mean Scores for Interaction between Play and Threat (Hypothesis 3)

Play	Low Threat	High Threat
Solo	2.27	2.52
Group	2.83	2.75

Figure 1: A Serial Mediation model to predict cooperative video game play

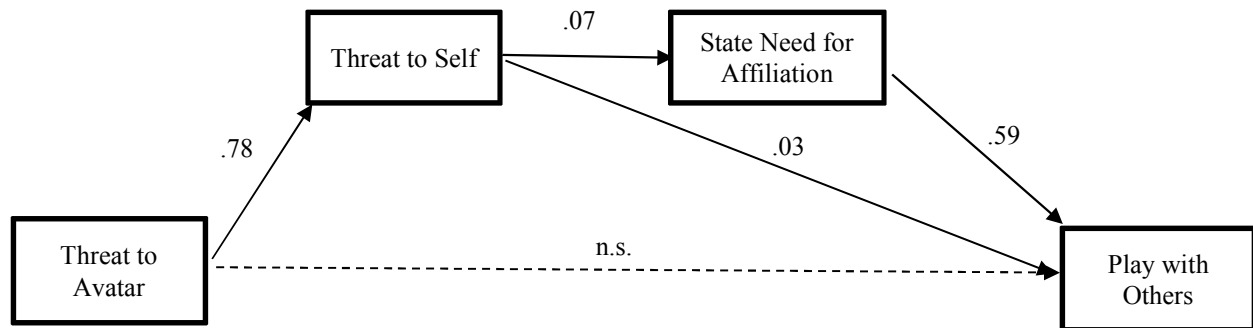
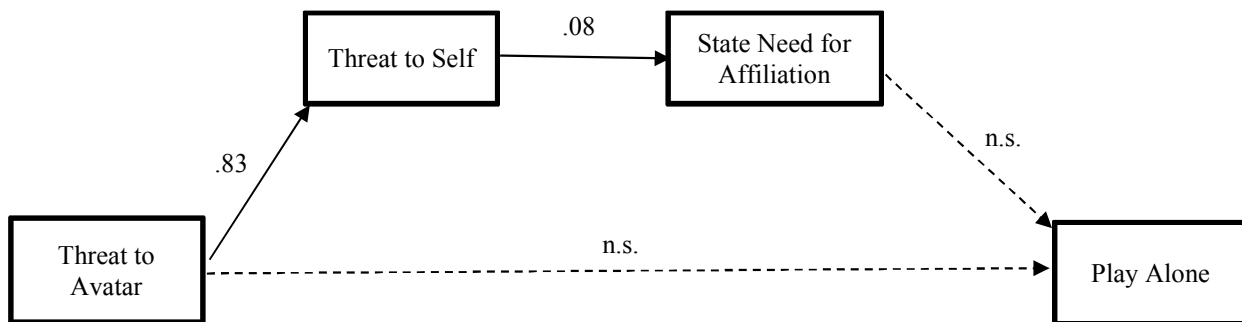


Figure 2: A Serial Mediation model to predict playing video games alone



DISCUSSION

As in previous research, the current study examined why people favor playing violent video games with others even though violent video games increases aggressive-related affects and physiological arousal (Anderson & Bushman, 2001). Recent research has shown that cooperative video game play can decrease the adverse effects of violent video games on aggressive cognition, aggressive behaviors, and state hostility (Velez *et al.*, 2014; Velez, 2015). Also, research on violent video games suggests that how players play the video game (alone vs. together and competitively vs. cooperatively) serves a more critical role than the content of the game. For example, research suggests that players prefer to play video games cooperatively with other players (Velez & Ewoldsen, 2013) and they form positive relationships by doing so (Kutner & Olson, 2008; Olson, 2010). However, little is known about the motivations for cooperative game play despite the negative effects of violent video games.

The current study replicated previous research suggesting that players who took the role of an avatar in a violent video game displayed an increased need for affiliation (Velez *et al.*, unpublished data). However, previous findings are limited to one video game genre, shooter/role- playing game. The current study expands previous research by demonstrating that the same processes would occur in a horror video game as well. Consistent with previous findings, Hypothesis 1 suggests that perceived threat influenced need for affiliation. When participants were watching the game play videos, their perceptions of threat to the avatar increased which subsequently led to an increase to affiliation motivation. This increased need for affiliation could be the reason behind players' predilection for cooperative game play thereby mitigating the detrimental effects of violent video games.

The current study also found that killing of the avatar led participants to experience higher level of perceived threat to the avatar compared to those in the low threat condition where no physical harm of the avatar occurred. This finding is consistent with the previous research that direct violence to the avatar, compared to the possibility of violence led to higher levels of perceived threat toward the avatar. Another current result, however, found that participants who watched their avatar play the game alone did not report higher level of perceived threat to the avatar than those who watched their avatar play with others in a group.

The current study found some interesting results regarding participants' need for affiliation and the manipulation of how participants watched their avatar play the game (Solo vs. Group). Hypothesis 3 predicted that participants would experience lower levels of need for affiliation when they thought they were playing cooperatively with others than playing alone. Contrary to predictions, participants displayed marginally significant higher need for affiliation when they watched their avatar play in a group than those who watched their avatar play alone. One of the interpretations of these findings may involve the nature of the manipulation. In other words, perhaps the manipulation was not successful in the *Group* condition. Even though participants in this condition were informed that their avatar will be playing the game with others as a group, all members of the group did not physically interact among each other. In other words, other avatars were merely there. *Phasmophobia* is a puzzle-solving, cooperative, horror video game, but systemic interactions among players are not implemented within the game. Although in-game voice communication is allowed, the current study did not utilize it to prevent confusion and any unwanted voice data.

Moreover, the current study sought to answer the question of how participants would desire to play a violent video game under threat in the future. One of the findings suggest that

perceived threat to the avatar lead players to play video games with others guided by need for affiliation. The other finding suggests that perceived threat to the avatar predicted perceived threat to the player which also led to players' desire to affiliate with others. However, need for affiliation did not lead to an increase in participants' desire to play video games alone.

These results are extending previous research suggesting that violent video game play increases perceived threat to the avatar and the self. The current study demonstrated the same results but by using a different genre, horror game. Moreover, congruent with the findings from previous research, the current results demonstrated that perception of threat within the game increases need for affiliation in the context of a horror video game. Critically, this experiment builds on previous research that need for affiliation, caused by threat, subsequently increased participants' desires to play with others. Previous research questions included regarding why people prefer to play violent video games cooperatively with others. The current research suggests that people like to play violent video games with others because guided by affiliation motivations they desire to play cooperatively with others thereby mitigating the detrimental effects of violent video games. Moreover, a horror game like *Phasmophobia* is designed to produce threat continuously. This also means that participants may feel as if something is going to jump at the avatar at any time. Thus, there is always a persistent level of threat in all conditions, making participants to anticipatory threat. This interpretation of perceptions of threat is different from that of previous study. For example, in the non-violent conditions of the previous study demonstrated avatars gambling which included no threat. In the violent conditions, threat occurs after a certain period with no violence and for an extended duration. This means that the avatar is reacting to immediate threat instead of reacting to anticipated threat. Future research should examine how

nature of threat or the vibe of a video game genre differs the interpretations of the relationship between perceptions of threat and the need for affiliation.

LIMITATIONS

Previous research has shown that perceived threat to the avatar increases need for affiliation. However, it is limited to one genre of video game: shooter/ role-playing game (RPG). The current study extends the prior research by using a horror game thereby increasing generalizability. Moreover, this experiment predicted need for affiliation under threat not only when the avatar is alone but also with others which eventually led participants' desires to play violent video games with others. However, the mentioned genres are merely two of other numerous genres. Future research should explore other genres such as Real-time strategy (RTS), Action-adventure, Massively Multiplayer Online RPG, and others.

Another limitation is that participants did not physically play the video game. Previous research suggests that video game play is more interactive and engaging than watching a video clip (Lin *et al.*, 2018). Future research should extend the current findings by determining whether the results are consistent when participants actually play a violent or horror video game. Additionally, previous research suggests that third-person point of view (POV) provides a more involving gaming experience (Lynch & Martins, 2015). As this study used a first-person point of view horror game, future experiment should determine whether POV alters players' need for affiliation under threat in the context of not only violent and horror video games but also other video game genres. However, it should be noted that Velez *et al.* (unpublished data) found no effect of first vs. third person point of view on threat or need for affiliation.

CONCLUSION

The present study extends the earlier work by Velez *et al.*, (unpublished data). Demonstrating that violent video games increase people's perceptions of threat which subsequently leads to an increase in players' need for affiliation not only in a single player setting but also in a cooperative situation. Together, these findings suggest that one possible effect of people playing violent video games with others should be the desire to play cooperatively which decreases negative effects of violent video games. Future research should implement a real video game play performed by participants and examine the other reasons behind players' desires to play violent video games cooperatively with others.

APPENDICES

APPENDIX A: Previous game playing behavior

Sex: Male_____Female_____

Age: _____

Year in College: _____

How long have you been playing video games (in years)? _____

Have you played video games for 1 hour or more within the last 7 days?

☐ Yes

☐ No

Q. How many hours do you spend with each of the following items on an average day? (round to the nearest hour)

Video Games (e.g., PS3, Xbox 360, Nintendo Wii, etc.):

Weekday	_____
Weekend	_____

Rate your overall ability level as a gamer

1	2	3	4	5	6	7
Rookie						Expert

Q. The following questions ask you about how you **actually** play video games. The following questions ask how you play games, but not how you would prefer to play video games.

I play video games alone (not including online with others).

- ☐ Never
 - ☐ Rarely
 - ☐ Sometimes
 - ☐ Often
 - ☐ Always
-

I play video games alone (but with others watching).

- ☐ Never
 - ☐ Rarely
 - ☐ Sometimes
 - ☐ Often
 - ☐ Always
-

I play video games with others (in person).

- ☐ Never
 - ☐ Rarely
 - ☐ Sometimes
 - ☐ Often
 - ☐ Always
-

I play video games with others (online).

- ☐ Never
 - ☐ Rarely
 - ☐ Sometimes
 - ☐ Often
 - ☐ Always
-

I play video games with others (online while also playing with others in person).

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Often
- ☐ Always

Q. The following questions ask your preferences for how you like to play video games. These questions are not about how you actually play games, but rather, how you **would like** to play video games. These are your preferences, so there are no right or wrong answers.

I prefer to play video games alone (not including online with others).

- ☐ Very Strongly Avoid
 - ☐ Strongly Avoid
 - ☐ Avoid
 - ☐ Indifferent
 - ☐ Prefer
 - ☐ Strongly Prefer
 - ☐ Very Strongly Prefer
-

I prefer to play video games alone (but with others watching).

- ☐ Very Strongly Avoid
 - ☐ Strongly Avoid
 - ☐ Avoid
 - ☐ Indifferent
 - ☐ Prefer
 - ☐ Strongly Prefer
 - ☐ Very Strongly Prefer
-

I prefer to play video games with others (in person).

- ☐ Very Strongly Avoid
 - ☐ Strongly Avoid
 - ☐ Avoid
 - ☐ Indifferent
 - ☐ Prefer
 - ☐ Strongly Prefer
 - ☐ Very Strongly Prefer
-

I prefer to play video games with others (online).

- ☐ Very Strongly Avoid
 - ☐ Strongly Avoid
 - ☐ Avoid
 - ☐ Indifferent
 - ☐ Prefer
 - ☐ Strongly Prefer
 - ☐ Very Strongly Prefer
-

I prefer to play video games with others (online while also playing with others in person).

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Often
- ☐ All of the Time

Q. The following questions ask about your actual video game play behavior.

When playing video games with others, I play competitively (playing against someone else; trying to defeat someone).

- ☐ Never
 - ☐ Rarely
 - ☐ Sometimes
 - ☐ Often
 - ☐ All of the Time
-

When playing video games with others, I play cooperatively (playing with someone to accomplish a shared goal).

- ☐ Never
 - ☐ Rarely
 - ☐ Sometimes
 - ☐ Often
 - ☐ All of the Time
-

When playing video games with others, I play cooperatively competitive (playing with someone else to defeat others).

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Often
- ☐ All of the Time

Page Break

Q. Please indicate how much you prefer to do the following.

When playing video games with others, I prefer to play competitively (playing against someone else; trying to defeat someone).

- ☐ Very Strongly Avoid
- ☐ Strongly Avoid
- ☐ Avoid
- ☐ Indifferent
- ☐ Prefer
- ☐ Strongly Prefer
- ☐ Very Strongly Prefer

When playing video games with others, I prefer to play cooperatively (playing with someone to accomplish a shared goal).

- ☐ Very Strongly Avoid (1)
 - ☐ Strongly Avoid (2)
 - ☐ Avoid (3)
 - ☐ Indifferent (4)
 - ☐ Prefer (5)
 - ☐ Strongly Prefer (6)
 - ☐ Very Strongly Prefer (7)
-

When playing video games with others, I prefer to play cooperatively competitive (playing with someone else to defeat others).

- ☐ Very Strongly Avoid
- ☐ Strongly Avoid
- ☐ Avoid
- ☐ Indifferent
- ☐ Prefer
- ☐ Strongly Prefer
- ☐ Very Strongly Prefer

End of Block: Pre_Test

APPENDIX B: Trait Need for Affiliation

Q95 Please indicate how true each statement is for you:

NFA1 One of my greatest sources of comfort when things get rough is being with other people.

- ☐ Not at All True
- ☐ Slightly True
- ☐ Somewhat True
- ☐ Mostly True
- ☐ Completely True

NFA2 I prefer to participate in activities alongside other people rather than by myself because I like to see how I am doing on the activity.

- ☐ Not at All True
- ☐ Slightly True
- ☐ Somewhat True
- ☐ Mostly True
- ☐ Completely True

NFA4 It seems like whenever something bad or disturbing happens to me I often just want to be with a close, reliable friend.

- ☐ Not at All True
- ☐ Slightly True
- ☐ Somewhat True
- ☐ Mostly True
- ☐ Completely True

NFA5 I mainly like people who seem strongly drawn to me and who seem infatuated with me.

- ☐ Not at All True
- ☐ Slightly True
- ☐ Somewhat True
- ☐ Mostly True
- ☐ Completely True

NFA7 When I am not certain about how well I am doing at something, I usually like to be around others so I can compare myself to them.

- ☐ Not at All True
- ☐ Slightly True
- ☐ Somewhat True
- ☐ Mostly True
- ☐ Completely True

NFA8 I like to be around people when I can be the center of attention.

- ☐ Not at All True
- ☐ Slightly True
- ☐ Somewhat True
- ☐ Mostly True
- ☐ Completely True

NFA9 When I have not done very well on something that is very important to me, I can get to feeling better simply by being around other people.

- ☐ Not at All True
- ☐ Slightly True
- ☐ Somewhat True
- ☐ Mostly True
- ☐ Completely True

NFA10 Just being around others and finding out about them is one of the most interesting things I can think of doing.

- ☐ Not at All True
- ☐ Slightly True
- ☐ Somewhat True
- ☐ Mostly True
- ☐ Completely True

NFA11 I seem to get satisfaction from being with others more than a lot of other people do.

- ☐ Not at All True
- ☐ Slightly True
- ☐ Somewhat True
- ☐ Mostly True
- ☐ Completely True

NFA12 If I am uncertain about what is expected of me, such as on a task or in a social situation, I usually like to be able to look to certain others for cues.

- ☐ Not at All True
- ☐ Slightly True
- ☐ Somewhat True
- ☐ Mostly True
- ☐ Completely True

NFA13 I feel like I have really accomplished something valuable when I am able to get close to someone.

- ☐ Not at All True
- ☐ Slightly True
- ☐ Somewhat True
- ☐ Mostly True
- ☐ Completely True

NFA15 During times when I have to go through something painful, I usually find that having someone with me makes it less painful.

- ☐ Not at All True
- ☐ Slightly True
- ☐ Somewhat True
- ☐ Mostly True
- ☐ Completely True

NFA16 I often have a strong need to be around people who are impressed with what I am like and what I do.

- ☐ Not at All True
- ☐ Slightly True
- ☐ Somewhat True
- ☐ Mostly True
- ☐ Completely True

NFA17 If I feel unhappy or kind of depressed, I usually try to be around other people to make me feel better.

- ☐ Not at All True
- ☐ Slightly True
- ☐ Somewhat True
- ☐ Mostly True
- ☐ Completely True

NFA18 I find that I often look to certain other people to see how I compare to others.

- ☐ Not at All True
- ☐ Slightly True
- ☐ Somewhat True
- ☐ Mostly True
- ☐ Completely True

NFA19 I mainly like to be around others who think I am an important, exciting person.

- ☐ Not at All True
- ☐ Slightly True
- ☐ Somewhat True
- ☐ Mostly True
- ☐ Completely True

NFA21 I often have a strong desire to get people I am around to notice me and appreciate what I am like.

- ☐ Not at All True
- ☐ Slightly True
- ☐ Somewhat True
- ☐ Mostly True
- ☐ Completely True

NFA23 I usually have the greatest need to have other people around me when I feel upset about something.

- ☐ Not at All True
- ☐ Slightly True
- ☐ Somewhat True
- ☐ Mostly True
- ☐ Completely True

NFA24 I think being close to others, listening to them, and relating to them on a one to- one level is one of my favorite and most satisfying pastimes.

- ☐ Not at All True
- ☐ Slightly True
- ☐ Somewhat True
- ☐ Mostly True
- ☐ Completely True

NFA25 I would find it very satisfying to be able to form new friendships with whomever I liked.

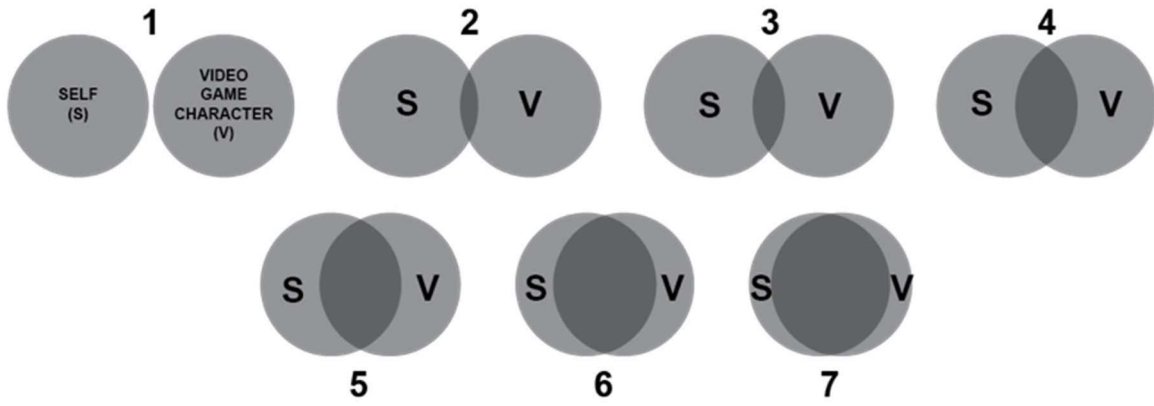
- ☐ Not at All True
- ☐ Slightly True
- ☐ Somewhat True
- ☐ Mostly True
- ☐ Completely True

NFA26 One of the most enjoyable things I can think of that I like to do is just watching people and seeing what they are like.

- ☐ Not at All True
- ☐ Slightly True
- ☐ Somewhat True
- ☐ Mostly True
- ☐ Completely True

Figure 3 – Inclusion of Other in the Self (IOS) Scale

Instructions: Please circle the picture below that best describes your relationship.



APPENDIX C: Arousal

Each line contains an adjective pair which you will use to rate your feelings. Some of the pairs may seem unusual, but you'll probably feel more one way while thinking about the above scenario than another. So, for each pair, place a check close to the adjective which you believe describes your reaction while thinking about the scenario. The more appropriate the adjective seems, the closer you should put your check mark to it.

Happy		Unhappy
Annoyed		Pleased
Satisfied		Unsatisfied
Melancholic		Contented
Hopeful		Despairing
Bored		Relaxed
Relaxed		Stimulated
Excited		Calm
Sluggish		Frenzied
Jittery		Dull
Sleepy		Wide awake
Aroused		Unaroused
Controlled		Controlling

Influential		Influenced
Cared for		In Control
Important		Awed
Submissive		Dominant
Autonomous		Guided

APPENDIX D: Threat

Please indicate how true each of the following statements are while thinking about the video game you just watched.

Q91 The game's player is at high risk for being harmed.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither Agree nor Disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

Q92 It is likely that the video game player will be harmed.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither Agree nor Disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

Q93 There is a high chance that the video game player will be harmed.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither Agree nor Disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

Q94 If the video game player was attacked, it would end the player's life.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither Agree nor Disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

Q100 If the video game player was attacked, the player would not be able to recover

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither Agree nor Disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

Page Break

Q116 Indicate how true each of the following statements are:

Q118 I feel fearful.

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	8 (8)	9 (9)	10 (10)	11 (11)	
None of this Feeling	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Great Deal of this Feeling

Q186 I feel afraid.

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	8 (8)	9 (9)	10 (10)	11 (11)	
None of this Feeling	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Great Deal of this Feeling

Q187 I feel scared.

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	8 (8)	9 (9)	10 (10)	11 (11)	
None of this Feeling	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Great Deal of this Feeling

Q188 I feel tense

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	8 (8)	9 (9)	10 (10)	11 (11)	
None of this Feeling	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Great Deal of this Feeling

Q189 I feel frightened

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	8 (8)	9 (9)	10 (10)	11 (11)	
None of this Feeling	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Great Deal of this Feeling

Q191 I feel anxious

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	8 (8)	9 (9)	10 (10)	11 (11)	
None of this Feeling										☐	☐	Great Deal of this Feeling

Q192 I feel uncomfortable

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	8 (8)	9 (9)	10 (10)	11 (11)	
None of this Feeling										☐	☐	Great Deal of this Feeling

APPENDIX E: State Need for Affiliation

Q177 Please indicate how true each statement is for you while thinking about playing the video game you just saw:

Q178 If I was playing that video game, I think if things got rough one of my greatest sources of comfort would be being with other people.

- ☐ Not at All True
- ☐ Slightly True
- ☐ Somewhat True
- ☐ Mostly True
- ☐ Completely True

Q179 If I was playing that video game, I would prefer to participate in an activity (or activities) alongside other people rather than by myself because I would like to see how I am doing on the activity.

- ☐ Not at All True
- ☐ Slightly True
- ☐ Somewhat True
- ☐ Mostly True
- ☐ Completely True

Q180 If I was playing that video game, I think I would want to be with a close, reliable friend.

- ☐ Not at All True (1)
- ☐ Slightly True (2)
- ☐ Somewhat True (3)
- ☐ Mostly True (4)
- ☐ Completely True (5)

Q181 If I was playing that video game, I think I would mainly like people who seem strongly drawn to me and who seem infatuated with me.

- ☐ Not at All True (1)
- ☐ Slightly True (2)
- ☐ Somewhat True (3)
- ☐ Mostly True (4)
- ☐ Completely True (5)

Q182 If I was playing that video game, I think I would want to be around others so I can compare myself to them.

- ☐ Not at All True (1)
- ☐ Slightly True (2)
- ☐ Somewhat True (3)
- ☐ Mostly True (4)
- ☐ Completely True (5)

Q183 If I was playing that video game, I think I would like to be around people when I can be the center of attention.

- ☐ Not at All True (1)
- ☐ Slightly True (2)
- ☐ Somewhat True (3)
- ☐ Mostly True (4)
- ☐ Completely True (5)

Q184 If I was playing that video game and I did not know if I was doing very well on something that was very important to me, I could get to that feeling simply by being around other people.

- ☐ Not at All True (1)
- ☐ Slightly True (2)
- ☐ Somewhat True (3)
- ☐ Mostly True (4)
- ☐ Completely True (5)

Q185 If I was playing that video game, just being around others and finding out about them would be one of the most interesting things I could think of doing.

- ☐ Not at All True (1)
- ☐ Slightly True (2)
- ☐ Somewhat True (3)
- ☐ Mostly True (4)
- ☐ Completely True (5)

Q186 If I was playing that video game, I think I would get more satisfaction from being with others compared to a lot of other people.

- ☐ Not at All True (1)
- ☐ Slightly True (2)
- ☐ Somewhat True (3)
- ☐ Mostly True (4)
- ☐ Completely True (5)

Q187 If I was playing that video game, I think I would feel like I was uncertain about what is expected of me, such as on a task or in a social situation, I usually like to be able to look to certain others for cues.

- ☐ Not at All True (1)
 - ☐ Slightly True (2)
 - ☐ Somewhat True (3)
 - ☐ Mostly True (4)
 - ☐ Completely True (5)
-

Q188 If I was playing that video game, I think I would I feel like I had really accomplished something valuable when/if I was able to get close to someone.

- ☐ Not at All True (1)
 - ☐ Slightly True (2)
 - ☐ Somewhat True (3)
 - ☐ Mostly True (4)
 - ☐ Completely True (5)
-

Q189 If I was playing that video game, I think If I had to go through something painful, I would find that having someone with me makes it less painful.

- ☐ Not at All True (1)
 - ☐ Slightly True (2)
 - ☐ Somewhat True (3)
 - ☐ Mostly True (4)
 - ☐ Completely True (5)
-

Q190 If I was playing that video game, I think I would have a strong need to be around people who were impressed with what I am like and what I do.

- ☐ Not at All True (1)
 - ☐ Slightly True (2)
 - ☐ Somewhat True (3)
 - ☐ Mostly True (4)
 - ☐ Completely True (5)
-

Q191 If I was playing that video game and I felt unhappy or kind of depressed, I would try to be around other people to make me feel better.

- ☐ Not at All True (1)
 - ☐ Slightly True (2)
 - ☐ Somewhat True (3)
 - ☐ Mostly True (4)
 - ☐ Completely True (5)
-

Q192 If I was playing that video game, I would look to certain other people to see how I compare to others.

- ☐ Not at All True (1)
- ☐ Slightly True (2)
- ☐ Somewhat True (3)
- ☐ Mostly True (4)
- ☐ Completely True (5)

Q193 If I was playing that video game, I would like to be around others who thought I was an important, exciting person.

- ☐ Not at All True (1)
 - ☐ Slightly True (2)
 - ☐ Somewhat True (3)
 - ☐ Mostly True (4)
 - ☐ Completely True (5)
-

Q194 If I was playing that video game, I think I would have a strong desire to get people I am around to notice me and appreciate what I am like.

- ☐ Not at All True (1)
 - ☐ Slightly True (2)
 - ☐ Somewhat True (3)
 - ☐ Mostly True (4)
 - ☐ Completely True (5)
-

Q195 If I was playing that video game, I think I would have the greatest need to have other people around me when I felt upset about something.

- ☐ Not at All True (1)
 - ☐ Slightly True (2)
 - ☐ Somewhat True (3)
 - ☐ Mostly True (4)
 - ☐ Completely True (5)
-

Q196 If I was playing that video game, I think being close to others, listening to them, and relating to them on a one-to-one level would be one of my favorite and most satisfying pastimes.

- ☐ Not at All True (1)
 - ☐ Slightly True (2)
 - ☐ Somewhat True (3)
 - ☐ Mostly True (4)
 - ☐ Completely True (5)
-

Q197 If I was playing that video game, I would find it very satisfying to be able to form new friendships with whomever I liked.

- ☐ Not at All True (1)
 - ☐ Slightly True (2)
 - ☐ Somewhat True (3)
 - ☐ Mostly True (4)
 - ☐ Completely True (5)
-

Q198 If I was playing that video game, one of the most enjoyable things I could think of that I would like to do is just watch people and seeing what they are like.

- ☐ Not at All True (1)
- ☐ Slightly True (2)
- ☐ Somewhat True (3)
- ☐ Mostly True (4)
- ☐ Completely True (5)

APPENDIX F: Instructions for *Phasmophobia*

Each player takes control of one member of a group of 4 players, in the role of ghost hunters who are hired to handle unidentified ghosts in different places such as homes, schools, prisons, and hospitals. The main objective of the game is to enter and explore haunted locations to gather evidence and search for paranormal activities to finalize the ghost's presence and classification. The game features 12 different kinds of ghosts: Spirit, Wraith, Phantom, Poltergeist, Banshee, Jinn, Mare, Revenant, Shade, Demon, Yurei, and Oni. Each ghost behaves differently in which comprises of the ghost interacting with objects in the environment or with players. Ghost activities include flickering lights, using its unique power (i.e., manipulating/activating objects), whispering, and others. For example, Poltergeist can manipulate multiple objects around players. Mare tend to cut off the lights more frequently as it grows more aggressive in the dark.

The goal of the game is not to defeat the ghost. However, the more correct evidence the players gather, the more bounty they get paid (the currency is used to purchase ghost hunting equipment). Players can use different equipment to help their mission such as thermometers, EMF readers, video cameras, crucifixes, UV flashlights, and many others. These tools have different purposes such as communication, investigation, protection, and clue gathering. Each ghost has a unique combination of three pieces of evidence that identifies the type of the ghost in presence. Each player can record and track found evidence via Journal within the game to determine the ghost. There are six pieces of evidence in the game that are used to identify the ghost. Look below:

Figure 4 - Lists of ghosts and evidence

The order of evidence in the journal does not matter.

Ghosts	EMF Level 5	Fingerprints	Freezing Temperatures	Ghost Orb	Ghost Writing	Spirit Box
Banshee	X	X	X			
Demon			X		X	X
Jinn	X			X		X
Mare			X	X		X
Oni	X				X	X
Phantom	X		X	X		
Poltergeist		X		X		X
Revenant	X	X			X	
Shade	X			X	X	
Spirit		X			X	X
Wraith		X	X			X
Yurei			X	X	X	

During the exploration, players will not only encounter ghost activities but also confront the ghost physically. In *Phasmophobia*, the Hunt is a phase when the ghost becomes corporeal and begin seeking a player to kill. During the Hunt, lights will flicker, including Flashlights, UV lights, and other light sources in the map/location. Also, all exit doors will close and become locked.

APPENDIX G: Demographics

Please indicate the following:

a.) Your Age

b.) Your Gender

☐ Male

☐ Female

c.) Number of years spent in College

d.) Which do you most identify with?

☐ White/Caucasian

☐ African American

☐ Asian

☐ Native American

☐ Pacific Islander

☐ Other

Do you consider yourself Hispanic?

☐ Yes

☐ No

APPENDIX H: Links to game clips

<https://youtu.be/n3yeqwEAyek> - Solo Low Threat

<https://youtu.be/b4gpxnfWWMg> - Solo High Threat

https://youtu.be/_Kp5nn5D3LE – Group Low Threat

<https://youtu.be/x2VDuxMHjwQ> - Group High Threat

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