PLAYING WITH THE ENEMY: COMPETITION, COOPERATION, AND SOCIAL DISIDENTIFICATION

By

Julia Crouse

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ABSTRACT

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Playing a video game competitively or cooperatively may impact a player's behaviors and aggression after game play. Competition has been found to elicit increased aggression, and cooperation has been found to attenuate aggression and facilitate cooperative behaviors. However, the distinction between pure competition and team competition has been relatively unexplored. Team competition contains both competitive elements of game play and cooperative behaviors among teammates. Of interest is the effect of playing in varying degrees of team competition (high vs. low social disidentification with the outgroup) and pure competition on feelings of aggression and cooperative behaviors. A between-subjects experiment ($N = 70$) was conducted to examine the relationship among low disidentification, high disidentification, and pure competition for state hostility, affiliation, and cooperative behaviors. It was predicted that those in the low disidentification conditions would experience significantly lower hostility, but greater affiliation both for ingroup and outgroup members. Compared to pure competition and high disidentification, low disidentification resulted in significantly greater feelings of aggression. However, no level of disidentification or outcome affected cooperative behaviors after game play, as measured by a modified Prisoner's Dilemma task. The implications of the findings are discussed.

This dissertation is dedicated to my family and friends, both of the human and furry variety.

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TABLE OF CONTENTS

LIST OF TABLES vii

LIST OF FIGURES viii

CHAPTER 1 1
Introduction 1

CHAPTER 2 7
Literature Review and Hypotheses 7
Realistic Conflict Theory 8
Cooperation and Competition 8
Intergroup or team competition 11
Hypotheses 1a, 1b, 1c 13
Social Identity Theory 13
Social identification 14
Ingroups and Outgroups 15
Minimal groups paradigm 16
Outgroup disidentification 17
Hypotheses 2a, 2b, 2c, 2d, 2e, 2f, 2g 18
Importance of Winning 19
Hypotheses 3a, 3b, 3c, 3d, 3e, 3f, 3g 20

CHAPTER 3 22
Method 22
Participants 23
Stimuli 24
Procedure 25
Confederate Protocol 26
Independent Variables 27
Outgroup disidentification 27
Covariates 28
Experience with hockey video games 28
Video game interest 28
Outcome Measures 29
Aggression 29
Ingroup affiliation 29
Outgroup affiliation 30
Cooperation and trust 30

CHAPTER 4 32
Results 32
Manipulation Check 32

State Hostility 32
Ingroup and Outgroup Affiliation 35
Cooperation 37

CHAPTER 5 44
Discussion 44
Social Identity Theory 44
Ingroup and Outgroup Affiliations 47
Cooperative Outcomes 51
The Prisoner's Dilemma problem 51
Outcome 55
Violence vs. Competition: The Issue of Genre 56

CHAPTER 6 60
Limitations and Conclusions 60
Conclusions 63

APPENDICES 65
Appendix A: Confederate Protocol 66
Appendix B: Visual Information Processing Test 68
Appendix C: Brochure Text for the Outgroup Disidentification Manipulation 69
Appendix D: Modified Prisoner's Dilemma- Cooperative Behaviors Measure 71
Appendix E: Screening Questionnaire: Determination of eligibility 72
Appendix F: Pre-test Questionnaire Measures 74
Appendix G: Post-test Questionnaire Measures 77
Appendix H: Summary of the Hypotheses and Results of the Analysis 81

REFERENCES 82

LIST OF TABLES

Table 1 Means and Standard Deviations for State Hostility Variables 34

Table 2 Means and Standard Deviations for Ingroup and Outgroup Affiliations Variables in Team Competition Conditions 36

Table 3 Results from the Logistic Regression Models Predicting Cooperative Behaviors from Team Competition Compared to Pure Competition (H1b and H1c) 38

Table 4 Results from the Logistic Regression Models Predicting Cooperative Behaviors within Ingroups for Low Disidentification compared to High Disidentification (H2d and H2e) 39

Table 5 Results from the Logistic Regression Models Predicting Cooperative Behaviors within Outgroups for Low Disidentification compared to High Disidentification (H2f and H2g) 40

Table 6 Results from the Logistic Regression Models Predicting Cooperative Behaviors within Ingroups for Winning Teams compared to Losing Teams for Team Competition Conditions (H3d and H3e) 41

Table 7 Results from the Logistic Regression Models Predicting Cooperative Behaviors within Outgroups for Winning Teams compared to Losing Teams for Team Competition Conditions (H3f and H3g) 41

Table 8 Summary of the Hypotheses and Results of the Analysis 82

LIST OF FIGURES

Figure 1 Diagram of the Prisoner's Dilemma Choices 31

Figure 2 Visual Information Processing Test 68

Figure 3 Brochure Text for the Outgroup Disidentification Manipulation 69

Figure 4 Modified Prisoner's Dilemma Diagram 71

CHAPTER 1

Introduction

Multiplayer gaming has become the most popular method of play for the majority of modern video game players (Lenhart et al., 2008). Working with others means that players must regularly engage in cooperation and competition (Allison, 1980; Axelrod & Hamilton, 1981). Until the most recent generation of technologically sophisticated video games and the wide availability of broadband Internet, video games were not considered sociable places that fell under the same kinds of social rules. One of the social rules that have started to be examined within multiplayer games is how the gaming context affects players. Researchers have found that competition generally produces aggression while cooperation increases cooperative behaviors. However, under certain circumstances competition may produce prosocial outcomes similar to those that often occur through cooperation (Song, Kim, Tenzek, & Lee, 2010), increase cognitive functioning (Decety, Jackson, Sommerville, Chaminade, & Meltzoff, 2004) and weight loss (Staiano, Abraham, & Calvert, 2012).

Understanding when competition produces aggression or cooperation produces prosocial behaviors and positive outcomes is complicated by the fact that contemporary studies have used a wide variety of definitions and implementation of competition and cooperation. Additionally, there are several major limitations within these studies. First, the majority of the research has focused on the impact of First-Person Shooter (FPS) games, generally heavily violent, competitive action games. It may be that other types of games with cooperative elements elicit positive outcomes, such as those that require playing with a cooperative goal structure in teams, such as sports games (El-Nasr et al., 2010). Second, most of the competitive and cooperative game research has examined the effects of Face-to-Face (FtF) game play even though most

modern competitive multiplayer games are conducted at least partially online. Finally, studies have not yet examined the social influences of these types of multiplayer gaming.

The majority of multiplayer gaming research has situated the variables as situational or contextual factors, in line with the assumptions of the General Aggression Model (GAM) (Anderson & Bushman, 2002). Competition has been shown to increase aggression in a manner akin to violent content (Carnagey, Anderson, & Bushman, 2007) while cooperation encourages prosocial behaviors (Schmierbach, 2010).

Competition has faced harsh criticism for its potentially destructive and negative effects, such as aggression, hostility, high anxiety, low motivation, and self-esteem tied to performance (Anderson & Carnagey, 2009; Bonta, 1997; Deutsch, 2011; Eastin, 2007; Mead, 1937; Velez, Mahood, Ewoldsen, & Moyer-Guse, 2012). Competition becomes constructive when, "all participants have a reasonable chance to win, and under circumstances in which there are clear, specific, and fair rules, procedures, and criteria for winning" (Johnson, 2003, p. 940). In these situations, competitors have a more enjoyable experience that elicits positive and prosocial outcomes, such as cooperative and affiliative behaviors and emotions among team members and even opponents (Greitemeyer & Cox, 2013; Tjosvold, Johnson, Johnson, & Sun, 2003). Constructive competition particularly occurs when people compete on a team against other teams (Tauer & Harackiewicz, 1999). Team, or intergroup, competition combines the positive interpersonal elements of cooperation with the excitement of competitions. In team competition individuals are in a cooperative relationship within their own group, or team, of two or more people while simultaneously in a competitive relationship with at least one other distinct group (Goldman, Stockbauer & McAuliffe, 1977).

Research on competition has focused largely on pure competition situations in which one or more individuals engage against one another in a zero-sum challenge conditions (Deutsch, 1949b). Relatively, team competition has been understudied (Tjosvold et al., 2003). Team competition involves groups of at least two or more people cooperatively engaged in a zero-sum challenge against other groups (Goldman et al., 1977; Tauer & Harackiewicz, 1999). When people participate in team competitions, they tend to like and prefer the characteristics of members of their own teams, or ingroups, more than they like members of their opposing teams, or outgroups (Tajfel & Turner, 1979). Because of this increased social identification with ingroup members, people focus on the differences separating them from outgroups, which often results in discrimination, prejudice, and possibly hostility toward members of other distinct groups [e.g. outgroups] (Sherif, Harvey, White, Hood, & Sherif, 1961; Goldman et al., 1977). However, having something small in common with outgroup members may reduce discrimination.

Social identification literature has focused on the interactions among ingroup members and the interplay between ingroups and outgroups (Deutsch, 1949a; 1949b; 2011; Sherif, Harvey, White, Hood, & Sherif, 1961; Tajfel & Turner, 1979; Tauer & Harackiewicz, 1999). A small but substantial body of research has found that social identification with outgroup members may encourage the constructive outcomes found in ingroups by reducing discrimination and encouraging affiliation. Failure to socially identify may be a potential source of conflict and aggression, or any behavior, thought, or feeling directed toward another individual that is "carried out with the [immediate] intent to cause harm" (Anderson & Bushman, 2002, p. 28). Aggression has often been operationalized as hostility, or being impulsively and thoughtlessly

driven by anger with the intent to harm another as an affective or cognitive reaction to a "perceived provocation" (Anderson & Bushman, 2002).

Identification with outgroup members may decrease their "otherness" (Pettigrew, 1998; Tajfel & Turner, 1979). According to social identity research, an individual's self-concept is derived, at least in part, from knowledge of membership to a social group and the value and emotional significance attached to that group (Tajfel & Turner, 2001). Group identification encompasses cognitive (self-categorization) and emotional dimensions (commitment to the group). People derive self-esteem from their group membership and seek out membership in positively evaluated groups by emphasizing the similarities with other members. Accentuation of differences, or *disidentification*, should increase the feeling of otherness, even among ingroup members. Traditionally, research has focused on social identification among ingroups, or those cooperating on the same team, but team competition research has suggested that people may also identify with or like members of outgroups, or those on opposing teams (Branscombe, Wann, Noel, & Coleman, 1993; Hogg & Grieve, 1999; Pettigrew, 1998), particularly when playing video games (Schmierbach, Xu, Oeldorf-Hirsch, & Dardis, 2012).

Competitive video games embody the elements necessary for constructive competition effects, such as cooperation, trust, and feelings of affiliation with teammates, Video games are an ideal place to test constructive competition outcomes because all players have a reasonable chance of winning in a situation with "clear, specific, and fair rules, procedures and criteria" (Johnson, 2003, p. 940). However, the bulk of research examining competition has predominantly examined graphically violent shooter games and thus, tied it to aggressive outcomes, such as increased feelings of hostility, aggressive thoughts, and competitive behaviors

(Adachi & Willoughby, 2011; Anderson & Morrow, 1995; Anderson & Carnagey, 2009; Ewoldsen, Eno, Okdie, Velez, Guagagno & DeCoster, 2012).

Too often, however, in-game cooperation has been regarded as the antidote to the negative effects of violence and competition (De Simone & Riddle, 2011, August; Ewoldsen et al., 2012; Greitemeyer et al., 2012; Schmierbach et al., 2012; Velez et al., 2012). However, this paradigm is limited and increasingly outdated. Video games have been steadily moving toward multiplayer interactions, in which players engage in team competitions that expose them to both competitive and cooperative elements (Greitemeyer & Cox, 2013; Lenhart et al., 2008; Ross & Weaver, 2012). Yet, social video game research lacks an overarching theoretical framework suitable to predicting the effects of social interactions during competitive video game play. This research would allow for examination of the capability of social, multiplayer video games to foster constructive outcomes among team members and competitive opposing teams. The social psychology frameworks of Realistic Conflict Theory (Tajfel & Turner, 1979) and Social Identity Theory (Billig & Tajfel, 1973; Tajfel & Turner, 2001) may help provide potential explanations for players' behaviors during multiplayer game play that explain post-gaming effects. However, these theories have not been extensively tested within virtual environments (i.e. video games); therefore, more research is required to determine their appropriateness for social multiplayer video game play.

The current study will provide an examination of these theories within the context of social multiplayer video game play. To that end, this study tested whether team competition in video games can promote cooperative behaviors (i.e. cooperation and trust) and feelings of affiliation among not only team members who play together in-person, but also between opponents encountered only virtually. Chapter one introduced the theoretical issues of the framework for

team competition in social multiplayer video game play. Chapter two presents a review of existing literature addressing the role of social identification on team competition and outgroup disidentification, drawing upon realistic conflict and social identity theories. Next, chapter three detailed an experiment that tested the relationship between ingroup and outgroup disidentification and competitive gameplay, as examined through hostility, affiliation, and cooperative behaviors. The results are presented in chapter four, followed by the discussion given in chapter five. Finally, the limitations and conclusions are discussed in chapter six.

CHAPTER 2

Literature Review and Hypotheses

Realistic Conflict Theory (RCT) research has demonstrated that ingroups and outgroups are formed primarily through team competition. Additionally, team competition elicits increased enjoyment and more constructive behaviors than pure competitive situations (Sherif, Harvey, White, Hood, & Sherif, 1961; Tajfel & Turner, 1979; Tauer & Harackiewicz, 1999). Social Identity Theory (SIT) has examined the interpersonal behaviors that facilitate the formation of ingroups and outgroups. SIT research has found that group members socially identify with their teammates to the extent that they feel increased favoritism toward ingroup members and hostility toward outgroup members (Brewer, 2008). Increased social identification increases the likelihood of cooperation, which facilitates increased social identification in a cyclical manner (Deutsch, 2011; Tajifel & Turner, 1979). This line of research has traditionally focused on the effects of social identification and ingroup affiliation.). In-group affiliation and out-group discrimination has been suggested to explain why multiplayer games may elicit different effects (Velez, Mahood, Ewoldsen, & Moyer-Guse, 2012). In general, researchers have found that games with known out-groups (competitive games) elicit aggressive responses (Schmierbach, 2010) whereas cooperative games, with a known in-group, increase cooperative behaviors (Ewoldsen et al., 2012). However, research also has indicated that people may identify with outgroup members, particularly when involved in team competitions (Branscombe, Wann, Noel, & Coleman, 1993; Hogg & Grieve, 1999; Pettigrew, 1998). The involvement in a team-based event may supersede conflict created through competition, particularly when playing video games (Schmierbach, et al., 2012).

Realistic Conflict Theory

Realistic Conflict Theory (RCT) research has suggested that conflict arises from the tension among individuals or groups that arises over resources (Tajfel & Turner, 1979). Conflict develops when two or more groups need the same limited resources, which may lead to hostility and feelings of prejudice against others (Tajfel, 1974). Competitions are zero-sum contests in which the limited resource is represented as winning the challenge. More specifically, competition is the, "presence of a goal or reward that only one or a few group member(s) could achieve by outperforming the others" (Qin, Johnson & Johnson, 1995, p. 131).

Paramount to this conflict theory is the development of a perception of in-group and out-group among the competing groups, such that the in-group cooperates amongst itself while discriminating against the outgroup. This is based in part on the Robbers' Cave study (Sherif, Harvey, White, Hood, & Sherif, 1961), in which the researchers assigned young boys into two separate but neighboring tribes during a summer day camps. The two groups were given a series of zero-sum, competitive activities for food, territory, and access to camp resources. As the field experiment went on, the boys developed strong feelings of affiliation among their in-group and strong prejudices and discriminatory attitudes toward the outgroup, which escalated from verbal taunting to destruction of the outgroup's property and propensity toward physical violence. Although this theory focuses on the conflict between groups, the intra-group interactions during the competitive processes have been found to produce increased levels of cohesiveness, morale, and cooperation (Tajfel & Turner, 2001).

Cooperation and Competition. Within the social science literature, cooperation and competition have been defined as two different types of goal structures. Cooperation occurs when two or more people have positively interdependent goals; wherein the goals are linked in

such a way that the probability of a person's goal attainment is positively correlated with the probability of another obtaining his goal (Deutsch, 2011). It also occurs when a group works toward a collective goal (Ewoldsen et al., 2012). These collective goals are shared, or mutual, among the self and other members of the group (Brewer & Gardner, 1996). Cooperation is the, "presence of joint goals, mutual rewards, shared resources, and complementary roles among members of a group," (Qin, Johnson, & Johnson, 1995, p. 131). These types of cooperative interactions encourage the development of ingroups and outgroups (Brewer, 1999; 2008; Sherif et al., 1961).

Cooperative tasks require behaviors that encourage positive interactions (Johnson, 2003; Johnson & Johnson, 1989). Working toward a common goal has been found to create feelings of group responsibility, personal accountability, and teamwork (Johnson, 2003; Johnson & Johnson, 1989). Group members become more motivated to do their part and satisfy the expectation of their peers when they feel the weight of cooperative responsibility (Johnson, 2003; Johnson & Johnson, 1989; Matsui, Kakuyama, & Onglatco, 1987). Group members also have an obligation to help the group meet its goal. To do this, each individual member must perform his or her duties well (Matsui et al., 1987). "Failing oneself is bad, but failing others as well is worse" (Johnson, 2003, p. 939). When each group member performs as expected, they share a responsibility for the failure or success of the group as a whole. This increases the level of social identification with their team, which facilitates affiliation and cooperative behaviors among teammates (Brewer, 2008).

Social identification due to cooperation may be attenuated when group members fail to equally participate or contribute toward the mutual goals (Deutsch, 2011). Group members become frustrated with each other and stop the social identification process (Johnson, 2003),

increasing the possibility of conflict and aggression even toward ingroup members (Deutsch, 2011).

Although competitors may identify with others on a macro level (e.g. We are all video game players), competition has been regarded within the social science literature as individualized activity, typically without ingroups or outgroups (Johnson, 2003; Johnson & Johnson, 1989). All competition requires negatively dependent goals, wherein the goals are linked in such a way that one party attains the goal at the cost of the other's possibility of goal attainment (Deutsch, 1949a; Deutsch, 1949b). However, only pure competition pits individual against individual in a zero-sum contest. This type of competition is associated with conflict because of the nature of the zero-sum challenge in which only one competitor may be successful. Additionally, competitors often intentionally block others' goal achievement, resulting in frustration due to the conflict (Deutsch, 2011). Those engaged in pure competition generally report increased aggressive outcomes, such as increased state hostility (Adachi & Willoughby, 2011; Anderson & Carnegey, 2009; Eastin, 2007) or aggressive cognition and affect (Schmierbach, 2010) compared to those engaged in cooperative tasks.

To date, most studies have examined competition and cooperation as opposing goal structures. Cooperation is seen as a facilitator of mutual goals, in which every group member attains or fails to reach the goal. The types of goals associated with cooperation are positively interdependent because one person's probability of obtaining his goal is positively liked with another person her goal. In other words, everyone sinks or swims together (Deutsch, 2011). Competition is negatively interdependent as one person's achievement is negatively linked with someone else's goal achievement; if one swims, the other sinks and vice versa. Working together is advantageous for those with mutual, or cooperative, goals. These cooperative interactions tend

to be positively charged and results in creations of in-groups, open communication, increased enjoyment, and higher performance for all group members. Competitors are rewarded for negatively charged interactions to slow down their opponent, such as obstructiveness, intentional miscommunication, and creation of outgroups, resulting in conflict or aggressive interactions (Deutsch, 1993).

This dichotomy has been applied to video games, as well. Violent games reward players for negative interactions with other characters or players, such as violently killing or hurting them (Anderson & Bushman, 2002) whereas games that are prosocial in nature reward players for positive interactions, such as healing other characters, helping other characters or players with tasks or problems, or finding nonviolent solutions to problems (Gentile et al., 2009). Competition and cooperation have been adapted into the model as contextual or situational variables influencing whether the players are motivated to interact negatively (competition) or positively (cooperation) to achieve their goals (Gentile, 2011).

Within video game research, cooperative outcomes have been operationalized as cooperative behaviors by choosing the cooperative choice in a social dilemma task, such as the Prisoner's Dilemma Task (Ewoldsen et al., 2012; Velez et al., 2012; Velez, 2015). In general, participants in cooperative conditions tend to choose cooperative strategies in these types of social dilemma games (see Fig. 1). Those who "cooperate" choose the strategy that is mutually beneficial rather than self-serving. Similarly, those who predict their partners or opponents also will choose the cooperative option are considered to be displaying trust, another cooperative action (Cook, Hardin, & Levi, 2007; Ferrin, Bligh, & Kohles, 2007).

Intergroup or team competition. Intergroup or team competition exists when groups of two or more individuals compete against other groups. This type of competition occurs when

different groups compete for a reward that may only be obtained by one group, presenting a conflict of interests (Turner, 1975). Similar to pure competition, teams often intentionally impede the others teams' efforts to reach the goal by coordinating efforts at an ingroup level (Johnson, 2003). Team competition involves both cooperative and competitive tasks; and, as such, individuals often perceive themselves and others as members of ingroups and outgroups. Theoretically, teammates must cooperate with each other (i.e. the other ingroup members) while remaining in competition with other groups. Groups compete with others for a material reward and/or for social dominance, in which groups compete to socially categorize their ingroup into the most positive group concept, or identity (Turner, 1975).

According to social identity research, an individual's self-concept is derived, at least in part, from knowledge of membership to a social group and the value and emotional significance attached to that group (Tajfel & Turner, 2001). Group identification encompasses cognitive (self-categorization) and emotional dimensions (commitment to the group). People derive self-esteem from their group membership and seek out membership in positively evaluated groups. Van Looy et al. (2012) argues that group identification is a cognitive and emotional process of self-categorization and group commitment and concerns the perceived self-attributes derived from membership of an in-game group.

The formation of an ingroup relies upon its distinction from outgroups (Brewer, 1999). In team competitions, this categorization seems easy as individuals are assigned to work with a specific group of other people. However, it becomes muddied when we consider that in team competitions, ingroup members must work together not only with one another to obtain the desired resources but also work cooperatively in some respects with outgroup members to continue participation in any rule-based event. Intra-group cooperation during competitive

processes may produce increased levels of cohesiveness, morale, and cooperation among both ingroup and outgroup members (Tajfel & Turner, 2001; Tauer & Harackiewicz, 2004). For example, cooperation with outgroup members is adherence to game rules and acceptance of rewards or penalties for breaking rules.

Hypotheses 1a, 1b, 1c. In pure competition, the focus is on the self-concept, or identity, whereas team competitions focus on the ingroup, outgroup, and the interactions necessary to continue the competition. Therefore, it is expected that those engaged in team competitions will not display as many aggressive outcomes, such as state hostility, than those in pure competition. Similarly, high rates of aggression, particularly stemming from competition, have been correlated with lower instances of cooperation (Anderson & Morrow, 1995; Tajfel & Turner, 1979). Team competition encourages the use to cooperative social skills to work together and resolve potential conflicts, reinforcing cooperative behaviors. Cooperative social skills include the decision to work together with a partner as well as trusting that the partner will reciprocate (Brewer, 2008; Montoya, & Pittinsky, 2011). Thus, the following hypothesis is proposed:

> Hypothesis (H) 1a: Those engaged in team competition will display less hostility than those in pure competition post-game play.
>
> H1b: Those engaged in team competition will display more cooperative behaviors with outgroup members than those in pure competition post-game play.
>
> H1c: Those engaged in team competition will display more trust with outgroup members than those in pure competition post-game play.

Social Identity Theory

Social Identity Theory (SIT) was derived from RCT to explain intergroup processes, group formation, and social identities. It posits that self-concept is derived both from membership to

different social ingroups and exclusion, or differentiation, from outgroups. People tend to seek the most positive self- or group-concept, or social identity possible. This means that most people engage in a social competition for prestige and status by highlighting the most positive aspects of their ingroup while focusing on the most negative attributes of the outgroup (Hogg et al., 1995; Tajfel & Turner, 1979). Like real-world competition for scarce resources, social competition also results in discrimination, prejudice, and negativity toward outgroups while favoring the ingroup and thus, the self (Bonta, 1997; Mead, 1937; Sherif et al., 1961; Tajfel & Turner, 1979). These social identities are created by categorizing the self and others into different groups, based on certain characteristics and value-laden attributes. Groups are then evaluated positively or negatively based on these qualities (Billig & Tajfel, 1973; Tajfel & Turner, 2001). A positive social identity is achieved when an ingroup is evaluated favorably in comparison to an outgroup.

Social multiplayer video games naturally divide players into in-groups and out-groups, either artificially (the game randomly chooses players on a team) or intentionally (players choose which team they join). SIT provides the opportunity for video games researchers to look at the intergroup processes involved in intergroup competition and predict when game play may cause aggression or cooperation post-game play. However, few have ventured beyond the creation of in-groups and out-groups and delved into the identification processes involved in competition and cooperation (Hogg, 2006; Hogg et al., 1995).

Social identification. People categorize themselves into an ingroup by identifying their personal attributes derived from the membership to different social groups. This is their social identity. Social categorization accentuates perceived similarities to match what is seen as the defining features of the group (Hogg et al., 1995). Thus, social categorization acts as a, "means of systematizing and ordering the social environment particularly with regard to its role as a

guide for action, and as a reflection of social values" (Turner, 1975, p. 7). Other people become depersonalized with the relevant characteristics emphasized and irrelevant or incompatible features suppressed. In this way, each ingroup member is perceived to embody the group norm or prototype because of the exaggerated perceptions of similarity between self and other ingroup members, and the differences between the self and outgroup members (Terry & Hogg, 1996). Being part of an ingroup carries emotional and value significance because members feel this categorization is evaluated positively both by the group and outsiders (Tajfel & Turner, 1979; Turner, 1975).

When personal identification is more salient than social identification, people favor themselves more than the group. In other words, individually identified people will do what is best for themselves rather than what is in the group's interest (Wit & Wilke, 1992). Accordingly, when social identity is more salient, people considers themselves group members first and individuals second. As such, other individual members of the group are seen as, "equivalent and interchangeable with other ingroup members" (Wang, Walther, & Hancock, 2009, p. 61). Personal identification is most salient during pure competition. Competitors may feel part of the competition ingroup, but are individually focused due to the nature of the event. Conversely, the affordances of cooperation help to make social identities, or group membership, salient. Thus, intergroup competitions, which require cooperation among team members, make social identification more salient than personal identification (Deutsch, 2011).

Ingroups and Outgroups

When ingroups are formed, members differentiate between "us" (ingroup) and "them" (outgroup), or those that fall outside of the boundary of "us" (Brewer, 1999). The outgroup is seen as a threat to ingroup interests, be it real or imagined. People favor the ingroup largely

because they expect to be treated more nicely from other ingroup members than outgroup members. Social interactions are more predictable and "we" are perceived as more "trustworthy, familiar, and honest" (Brewer, 1999, p. 435).

The feeling of belonging to an ingroup often causes a person to make more of an effort to match individual behaviors to the ingroup social identity (Hogg et al., 1995). Not only do members match individual behaviors, but the higher the degree of social identification, the more members will perform necessary actions to achieve the group's goal (Brewer, 2008; Montoya & Pittinsky, 2011). High social identification results members' behaviors working to maximize their ingroup's interests, such as engaging in cooperative behaviors and feeling more affiliative emotions toward group members (Brewer, 1979; Brewer, 2008). Low social identification with the ingroup results in fewer cooperative behaviors and lower ingroup affiliation. Low social identification is also associated with higher personal identification. Ingroup affiliation occurs when a person identifies more with the group they feel they belong to than any other group, resulting in increased positive feelings and opinions of other group members and the group itself. Strong ingroup identification also creates more of a distinction between ingroup and outgroup, which has been found to result in increased prejudicial attitudes and hostility toward the outgroup (Brewer, 1999).

Minimal groups paradigm. Ingroup and outgroup social identities may be easily triggered through seemingly trivial shared characteristics, such as a common similarity or trait among group members (Brewer, 1979). The Minimal Group Paradigm (MPG) has found that ingroups may be formed from as categorizing people into arbitrary groups, such that ingroup favoritism and outgroup discrimination are increased (Tajfel, Billig, Bundy, & Flament, 1971). Tajfel and colleagues created groups that lacked the kinds of factors that tend to contribute to the

emergment of biases and subsequent outgroups (i.e. communication, prior history, similarity, conflict of interest, and shared fate). The created groups shared a small, seemingly insignificant quality in common, such as being categorized as an "overestimator" or "underestimators" when asked to guess the number of dots on a screen (Tajfel, 1970). Although the researchers had planned to determine other factors that lead to ingroup and outgroup biases, they found that these minimal groups were enough to spark ingroup favoritism and outgroup hostility (Tajfel et al., 1971).

Outgroup disidentification. Outgroup discrimination is likely when group membership is salient, e.g. high ingroup identification. When ingroup saliency is low, no intergroup discrimination is likely to exist (Pettigrew, 1998). Negative effects only become likely when the distinction between ingroup and outgroups is accentuated (Brewer, 1979). While increased identification with the outgroup minimizes differences and potential conflict, disidentification with the outgroup has the opposite effect. Disidentification is cognitive distancing through self-categorization (Elsbach & Bhattacharya, 2001). While social identification causes people to categorize themselves through similarities to a group, disidentification is categorization through differences to the outgroup. In other words, people define themselves by what they are not rather than what they are (Bhattacharya & Elsbach, 2002; Elsbach & Bhattacharya, 2001). High levels of disidentification with outgroup accentuates the differences between the ingroup and outgroup, decreasing outgroup affiliation and increasing ingroup affiliation (Bhattacharya & Elsbach, 2002; Elsbach & Bhattacharya, 2001). In other words, the more differences seen between a person and an outgroup member, the more that person will prefer ingroup members and discriminate against outgroup members. In addition to feeling increased affiliation to other ingroup members, outgroup disidentification also will increase social identification with ingroup

members compared to outgroup members (Bhattacharya & Elsbach, 2002; Elsbach & Bhattacharya, 2001). This may be seen by increased cooperation among ingroup members and decreased cooperation with outgroup members.

Team or intergroup competition heightens feelings of social identification with the ingroup by making members feel as if their group is better than average and superior to the outgroup (Blake & Mouton, 1961; Sherif et al., 1961). During team competition, members close ranks to outsiders and become single-minded in their goal to win (Blake & Mouton, 1961). As this occurs, the group's perception of their performance and others' is distorted and skewed toward the ingroup. Regardless of skills or quality, the ingroup position perceived as more favorable than others' (Blake & Jane Srygley, 1961; Blake & Mouton, 1961). As the saliency of social identity increases, the effects of social identification also increase, resulting in increased ingroup favoritism, and outgroup discrimination and prejudice (Voci, 2006).

Competitive events may threaten social identities (Branscombe & Wann, 1992; Branscombe et al., 1993). In competitions, spectators who do not have a high degree of social identification with a team may distance themselves from a team, particularly when it loses. However, highly identified fans cannot do so or risk becoming outcasts among their ingroups (Branscombe et al., 1993). In the case of losing a competition, those who have high degrees of identification with their ingroup may feel increased aggression. Acting aggressively, particularly toward the outgroup, may be a means of identity restoration by bringing the group together and reifying the distinction between ingroup and outgroup (Branscombe & Wann, 1992; Branscombe et al., 1993).

Hypotheses 2a, 2b, 2c, 2d, 2e, 2f, 2g. Social psychologists have suggested that differences between groups is at the root of conflict, and emphasizing the similarities between different

groups is a route toward ending conflict and encouraging peace (Bonta, 1997; Deutsch, 1993). When differences are accentuated, the social identity of the ingroup becomes more important, leading to increased trust and cooperative behaviors among ingroup members and decreased cooperation with outgroup members. However, when the differences are minimized, cooperative behaviors should increase with outgroup members, comparatively. Therefore, the following hypotheses are proposed:

H2: Compared to those in high disidentification condition, the low disidentification condition will report:

a) less state hostility
b) less ingroup affiliation
c) greater outgroup affiliation
d) less cooperation with ingroup members
e) less trust of ingroup members
f) greater cooperation with outgroup members
g) more trust with outgroup members

Importance of Winning

Even in cooperative situations , people feel increased anxiety to perform according to the expectations of the group, particularly in regard to obtaining the goal, or winning (Johnson, 2003). Failure to perform may result in conflict, and subsequently more negative feelings and increased feelings of hostility (Deutsch, 2011; Stanne, Johnson, & Johnson, 1999). Some studies have shown that losing a video game is significantly related to increased aggression (Griffiths, Eastin & Cicchirillo, 2015), suggesting that content is not the primary factor in determining post-game play responses, as has been suggested (Anderson & Carnegey, 2009).

A main assumption of SIT is the distinguishing an ingroup as superior to an outgroup. This distinction enhances an ingroup member's identification with the group itself (Hogg, 2006). In team competition, video game players have a clear winning and losing team. Winners likely will view their team as superior to the outgroup, purely on the basis that they successfully obtained their goals. Winning also should increase their identification with their own team, such as increasing feelings of affiliation toward their teammate. Simultaneously, it will reinforce the differences with the outgroup, resulting in less identification or feelings of affiliation toward their opponents (Velez, 2015).

Team competitions also place a higher priority on goal obtainment than pure cooperation situations because they include a zero-sum challenge against an outgroup, or opponent (Johnson, 2003). Failing to obtain the goal is highly correlated with increased aggression and hostility. People feel disappointed not only in themselves but in their contribution toward the group (Deutsch, 2011).

Hypotheses 3a, 3b, 3c, 3d, 3e, 3f, 3g. The literature on outcome is mixed. Outcome is shown to moderate the effects of identification for both ingroups and outgroups. For winners, it seems that ingroup affiliation is increased as well as cooperation among group members. Losers likely feel less ingroup affiliation and more hostility toward the outgroup, who deprived them of winning. However, studies also have shown that the opposite may be true. Losing groups feel more ingroup identification because they do not wish to appear disloyal to the group (Branscombe et al., 1993). Similarly, winning groups may not feel increased ingroup affiliation if they felt the win was unjust or too easy. It is likely that those who are on losing teams will not only feel more aggressive, but also SIT predicts that those on winning teams would be more

likely to socially identify with their ingroup and behave more cooperatively toward ingroup members compared to the outgroup.

H3: In team competition conditions, compared to those on losing teams, those who play on winning teams will report:

a) less state hostility
b) greater ingroup affiliation
c) less outgroup affiliation
d) greater cooperation with ingroup members
e) greater trust of ingroup members
f) greater cooperation with outgroup members
g) greater trust of outgroup members

CHAPTER 3

Method

The current study is interested in how social multiplayer video game play may influence player's ingroup and outgroup affiliation with regard to post-game play feelings of state hostility and cooperative behaviors in a modified Prisoner's Dilemma game. Research has shown that cooperative game play has an effect not only on players' game-playing partners, but also may extend to others that did not play the game (Greitemeyer & Cox, 2013; Greitemeyer et al, 2012). Although previous research has examined how playing a cooperative video game influences behaviors toward partners and non-video game players, little research has examined if these types of behaviors extend toward distinct outgroups (Velez, 2015).

According to the assumptions of RCT and SIT, competitive game play increases the likelihood of hostility toward outgroups and affiliation for ingroup members. Cooperative game play increases the probability of increased prosocial behaviors and positive social interactions (Ewoldsen et al., 2012; Greitemeyer & Cox, 2013; Schmierbach et al., 2010; Velez et al., 2012). However, the social multiplayer atmosphere of modern video game plan combines elements of pure competition and cooperation. Players are cooperative with ingroup members (i.e. teammates) while in competition with outgroups (i.e. opponents). Additionally, they are engaging in a challenge with clear and fair rules that gives all teams an equal chance to win. Under these circumstances, competition may have constructive outcomes similar on scale to cooperation (Johnson, 2003). This study is interested in examining the circumstances under which constructive competition may take place (i.e. pure competition and team competition) as well as how outcome affects post-game play outcomes.

To test the hypotheses, a three-group design was employed using team competition (low and high outgroup disidentification) and pure competition (control). The independent variable outcome was measured and recorded by the researcher. Participants were instructed to sign up for a gaming time slot that would either have them play against a confederate in pure competition or play with a confederate against another team of a participant and a confederate in team competition, playing a networked video game on the Xbox Live system. The majority of video game studies have examined cooperative game play using a graphically violent shooter-type game or a game without violent content (Ewoldsen et al., 2012; Schmierbach, 2010; Velez, 2015). Yet, one of the most popular genres of social multiplayer video games are sports games (Lenhart, 2008). These games are often played in both FtF and online contexts simultaneously. They provide an ideal setting to test team competition and the effects of constructive competition (Griffiths et al., 2015; Schmierbach et al., 2012).

Participants

Male participants (N = 82) were recruited through the departmental subject pool of undergraduates at Michigan State University. However, the Xbox Live system was not operational for three of the sessions (n = 6), so these participants were eliminated from analysis, bringing the total number of participants to 76. Only males were recruited because research has shown that males and females significantly differ in terms of their enjoyment and preference for video games (Bartholow & Anderson, 2002), particularly with regard to sports games, which overwhelmingly tend to be played by male players (98.4 %) (Stein, Mitgutsch, & Consalvo, 2013). Participants' ages ranged from 18 to 27 years old with a mean of 19.7 years (median 21). Participants reported themselves as white (65%), black (12%), Asian (11%), or Hispanic (9%), or other (3%).

Participants first were asked to fill out a short qualifying questionnaire regarding their game playing experiences and contact information. Those who qualified were invited to choose a time slot for the experiment (see Appendix E for the screening questionnaire). For the first round and second of data collection, participants earned participation credit through the subject pool, depending on the requirements of their specific class. However, few participants signed up to play with another participant. Therefore, a third round of data collection prioritized signing up with another participant. Each participant in the third round of data collection received $10 for participation.

Stimuli

Participants played the sports video game *3 on 3 NHL Arcade*, an arcade-style multiplayer hockey game available on Xbox Live's arcade (EA Sports, 2009). The game allows for team competition with up to three players competing against the same number of other players (2 vs. 2) as well as one player competing against another. The game does not include a narrative and play starts immediately with a hockey match; thus, players can experience a full game including the victory or defeat within the experimental time frame. The game features cartoonish violence, points for completing specific actions that earn players power-ups and access to special moves that help defeat the opposition. In the 2 vs. 2 game mode, both players act as hockey players on offense and defense, switching between three different player avatars on their team as appropriate.

Participants received verbal instructions from the researcher on how to use the controls and engaged in a practice session for about five minutes. After the practice session, team competition players were be moved to one of the two rooms to play in a four-person (2 vs. 2) game. Competitive players remained in the room with their opponent. They played a full game, which

means playing four 3-minute quarters. Actual playing time ranged between 10-15 minutes, depending on the events of the game. Players were randomly assigned to play as either the red or blue team. The hockey teams are similar in all aspects except for the uniform color; therefore, the events of the game depend on the skill of the players.

Procedure

Each experimental session consisted of either two or four players, comprised of one or two participants paired with one or two confederates, respectively. If two participants signed up for an experimental session, they were randomly assigned to one of the team competition conditions (low, $n = 19$; high, $n = 18$). If only one participant came to an experimental session, he was assigned to the competitive condition ($n = 33$).

Before signing up for an experimental session, participants first took an online pre-questionnaire to qualify for the experiment (Appendix E). The game play survey asked participants to rate how often they played each game on a list, what their perceived game skill was on each game, and their overall game play efficacy. Those who have never played any video game or those who have never played a sports game were excluded from the study. The purpose of excluding those is was because this game requires some familiarity with basic game control mechanics of sports games to progress smoothly through the game without being distracted from learning the control commands. Previous studies have shown that players who have never played a video game have struggled throughout game play, increasing their frustration, which may impact results (Lin, 2011). More than 250 people ($N = 254$) took the screening questionnaire. Of those, many were disqualified because they were not male or had not played video games before.

Therefore, all participants had a basic familiarity with the mechanics of sports video games. If participants met the minimum qualifications, they were invited to sign up for an experimental session.

When all the participants arrived, they were directed to taking the pre-test questionnaire (Appendix F). During the pre-test, the researcher classified participants according to the minimal groups paradigm. After completing the pre-test questionnaire, participants were be directed toward the Xbox 360 console (xbox.com, 2013). The experimental session took place in two rooms with one television monitor and a single Xbox 360 console. Players in the competitive condition played against a confederate in the same room. Players in the team competition conditions were first paired with a confederate then split into one of two identical rooms to play a match online. After the game was finished, participants completed the post-test questionnaire on the same laptop (Appendix G). They were then debriefed and dismissed. Each session lasted less than 60 minutes.

Confederate Protocol

Male confederates, aged 19-20, were used to ensure that all participants had as similar an experience as possible. They were recruited and trained to act like participants with a similar level of expertise as their assigned participant. They were instructed to be friendly, responding in-kind to verbal communication but not initiating conversation (see Appendix A). They were told to offer gameplay tips or suggestions only if the participant requested help. Confederates were told to play naturally with their partner or opponent, neither intentionally losing or winning the match. In the competitive sessions, confederates won the match about two-thirds of the time (68%). During the debriefing, when they were asked none of the participants reported a suspicion that they were playing with or against a confederate.

Independent Variables

Outgroup disidentification. Outgroup disidentification was manipulated using a Minimal Groups Paradigm task, which categorized people into groups based on an apparent shared characteristic (Brewer, 1979; Brewer & Silver, 1978; Moghaddam & Stringer, 1986; Tajfel, 1970). Intergroup research has consistently demonstrated that people will categorize themselves into groups based on minimal, or trivial, characteristics (Moghaddam & Stringer, 1986; Tajfel, 1970; Turner, 1975). Team competition also automatically creates an ingroup and outgroup (Sherif et al., 1961; Tajfel & Turner, 1979); however, it is possible that a greater social identity may supersede the competitive outgroup (Hogg, 2003). The disidentification manipulation amplified or minimized the differences between the ingroup and outgroup.

Outgroup disidentification has been primarily studied as a dependent variable. It was manipulated using a dot estimation task, similar to the task used in Tajfel's 1970 study. During the pre-test questionnaire, participants were asked to view a screen of dots of varying sizes for 5 seconds and estimate the number of dots on the screen (see Appendix B). They were told that this tested their visual judgment to determine how they process information: either emotionally or personally (see Appendix C). Although underestimation or overestimation is a small characteristic, Tajfel (1970) demonstrated that it was enough of a difference to create ingroups and outgroups. Regardless of what the participants actually estimated, the researcher read a pre-determined script informing them they were either overestimators or underestimators. Underestimators were told that they process information through personal intelligence (Mayer, 2013) while those who overestimated process information emotionally (Mayer, 2012). Although each type of intelligence has been studied in the psychological literature (Mayer, 2013; Mayer,

2012), their correlation to the dots estimation task is specious at best. During debriefing, participants were told the true nature of the task.

In the competition condition, the participant and confederate were both classified as underestimators or overestimators. In the high disidentification team competition condition, one team was told they were underestimators and their opponents were overestimators. In the low disidentification team competition condition, all four (2 participants and 2 confederates) players in the session were underestimators or all were overestimators. In the competitive and low disidentification conditions, the scripts were counterbalanced.

Covariates

Three covariates were included in the analysis, including pretest variables for the state hostility factors and ingroup and outgroup affiliation, as well as experience with hockey video games and video game interest.

Experience with hockey video games. Experience with hockey video games was measured in the screening questionnaire with three items (adapted from Eastin, 2007). Participants were asked to indicate the degree which they agreed with the three statements on a 5-point Likert-type scale, ranging from 1 (strongly agree) to 5 (strongly disagree). The statements included, "when I play sports games, I prefer to play hockey games;" "I have a lot of experience with hockey video games;" and "hockey is one of my favorite sports." The statements were combined in a single measure of experience with hockey games ($\alpha = .903$) ($m = 3.026$, $SD = 1.334$).

Video game interest. Video game skill was measured in the pretest questionnaire with a four-item measure (adapted from Bracken & Skalski, 2006) Participants were asked to indicate the degree to which they agreed with four statements on a 5-point Likert-type scale, ranging from 1 (strongly agree) to 5 (strongly disagree). The statements included, "I can finish video games

quickly;" "I have a good time playing video games;" "When I play against other people, I win most of the time;" and "I rarely quite playing a game before I beat it." The statements were combined into a single measure of video game interest (α = .739) (*m* = 2.257, *SD* = .701).

Outcome Measures

To address the hypotheses, aggression (state hostility) and cooperative behaviors were measured for all conditions. Additionally, those in the team competition conditions were asked to report ingroup and outgroup affiliation for the other players. A manipulation check measured the outgroup disidentification manipulation, asking whether participants to identify themselves and their opponents as overestimators or underestimators. For all measures except cooperative behaviors, participants were asked to indicate the degree to which they agreed with the statements on a 7-point Likert-type scale, ranging from 1 (strongly disagree) to 7 (strongly agree).

Aggression. Aggression was measured by examining state hostility, using the 35-item scale by Anderson, Deuser, and DeNeve (1995). Participants were asked to indicate the degree to which they felt described by a series of adjectives, including disgusted, unsociable, angry, enraged, etc. Items will be ranked on a 7-point scale, ranging from 1 (does not describe how I feel at all) to 7 (accurately describes how I feel). The items break down into four factors: feeling unsociable (α = 0.356), feeling mean (α = 0.959), lack of positive feelings (α = 0.807), and feeling aggravated (α = 0.837) (Anderson & Carnagey, 2009). Due to low internal consistency, the factor feeling unsociable was dropped from analysis.

Ingroup affiliation. Ingroup affiliation was measured using a six-question adaptation of Wang's (2007) 12-item Group Identification scale (Carr, Vitak, & McLaughlin, 2013). Only those in team competition conditions were asked to report their attraction to their ingroup

partner, as the pure competitive condition did not include a team competition ingroup. This 6-item scale asked participants the extent to which they agreed with the following statements:, “I felt involved in this person’s group,” “ I can see myself as a member of this person’s group,” “I would be pleased to me a member of this person’s group,” “I would want to be a member of this person’s group,” “It makes a difference to me how our group turned out,” and “I feel loyal to this person’s group.” These statements were combined into a single measure of ingroup affiliation (α = .928).

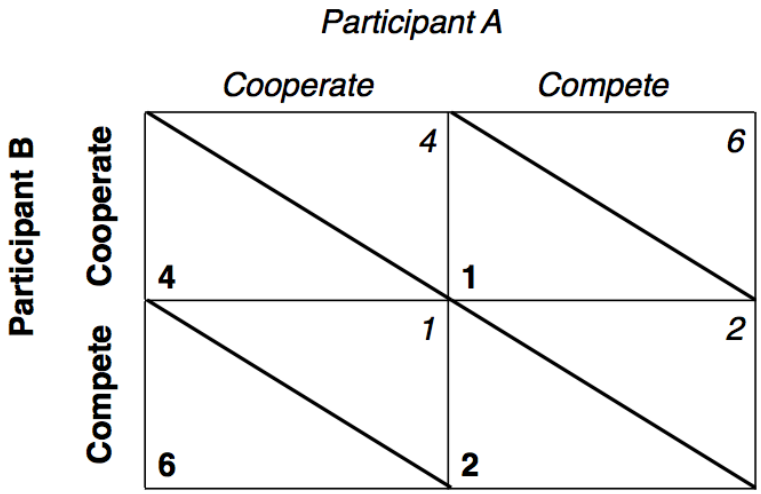
Outgroup affiliation. Outgroup affiliation was gauged using the 4-item group identification scale adapted from Doosje, Ellmers and Spears (1995). This scale measures affiliative social identification with another group. All participants were asked the extent to which they agreed with the following statements, regarding the group with whom they competed with during the game: “I identify with the other person's group,” “I see myself as a member of this person's group,” “I would be glad to be a member of this person's group,” and “I feel strong ties with this person's group.” These statements were combined into a single measure of outgroup affiliation (α = .852).

Cooperation and trust. Cooperative behaviors were measured using a modified Prisoner’s Dilemma, in which participants chose whether to cooperate or compete with their ingroup partner, or withdraw, as well as predicted whether their partner would choose to cooperate, compete, or withdraw. Participants were told that they could increase their number of entries into a drawing for a $100 gift card by predicting the other player’s actions in the mixed-motives game (Bem & Lord, 1979). In this one-shot social dilemma task, when both partners selected “cooperate,” the joint payoff is high, but if both chose to “compete” (defect), the payoff is low. When one partner chooses to “compete” and the other chooses “cooperate,” the former receives

additional payoff at the expense of the cooperator. If either chooses to withdraw, both receive an equal but lower payoff (see Fig. 1 below or Appendix D for the detailed description seen by participants). Choosing to cooperate was considered ‘‘cooperation,’’ and predicting cooperation was considered ‘‘trust’’ (Ewoldsen et al., 2012; Kollack, 1998; Velez et al., 2012). Participants in the team competition conditions ran through the prisoner’s dilemma scenario twice: once making the decision with the playing partner being their ingroup partner and again making the decision with the playing partner being one of their outgroup member. Participants were told that everyone received one entry for the drawing during the debriefing session.

Figure 1

Diagram of the Prisoner’s Dilemma Choices



CHAPTER 4

Results

Manipulation Check

A manipulation check was utilized to ensure that the experimental manipulation of outgroup identification (high/low) was successful. Participants were asked if they themselves were an overestimator or understimator and whether their playing partners and opposing teammates were underestimators or overestimators. Results indicated that 8.5% (n = 7) reported their own estimation tendencies incorrectly. However, these participants all correctly indicated that their partners shared the same estimation tendency, indicating that the identification manipulation was still successful even if misidentified. Two participants (2.4 %) incorrectly identified their playing partner as having a different estimation tendency. For the team competition conditions, four participants (4.9%) incorrectly reported the opposing team's estimation tendency. Therefore, these six participants were eliminated from the analysis bringing the total down number of participants from 76 to 70.

State Hostility

Hypothesis 1a suggested that those involved in team competition would display significantly lower hostility than those engaged in pure competition. A series of one-way ANCOVAs were conducted comparing the state hostility variables of those in team competition conditions (high outgroup disidentification and low outgroup disidentification) with those in the pure competition condition, controlling for the pretest state hostility factors, video game interest, and video game hockey skills. For the variable feeling mean, only the pretest covariate was significant, $F(1, 69) = 8.603$, $p = .005$; therefore, the covariates interest and skills were dropped from the ANCOVA. No significant differences were found between those playing in team competition compared to

pure competition for feeling mean, $F(1, 68) = 2.040$, $p = .079$, $\eta^2 = .030$. None of the covariates were found to be significantly related to lack of positive feelings; therefore, they were dropped from the ANCOVA. No significant differences were found between those playing in team competition compared to pure competition for lack of positive feelings, $F(1, 69) = .000$, $p = .494$, $\eta^2 < .001$. Finally, only the pretest aggravation covariate was significantly related to aggression, $F(1, 69) = 3.353$, $p = .036$; therefore, interest and skills were removed from the ANCOVA. No significant differences were found between those playing in team competition compared to pure competition for or aggravation, $F(1, 68) = 1.726$, $p = .097$, $\eta^2 = .025$ (see Table 1). Thus, H1a is not supported.

H2a predicted that those in the low disidentification conditions would report significantly less state hostility than those in the high disidentification condition. A series of one-way ANCOVAs were conducted examining the differences in conditions of the state hostility variables for those in low outgroup disidentification, high outgroup disidentification, and pure competition, controlling for the pretest state hostility factors. For feeling mean, the covariates of skill and interest were not significantly related; therefore, they were dropped from the test. The pretest feeling mean covariate was significantly related, $F(1, 36) = 7.799$, $p = .004$. A significant difference was for the feeling mean, $F(1, 35) = 3.10$, $p = .026$, $\eta^2 = .086$.. A planned contrast revealed that those in the low disidentification reported feeling significantly more feeling mean compared to those in the high disidentification, $p = .024$, 95% CI [-.931, -.005].

None of the covariates were significantly related to the variable lack of positive feelings; therefore they were dropped from the equation. No significant difference was found, $F(1, 36) = .191$ $p = .413$, $\eta^2 = .006$. A planned contrast revealed no significant difference between low and high disidentification, $p = .269$, 95% CI [-.602, .317].

Only the pretest aggravation covariate was significantly related to the variable aggravation, $F(1, 36) = 3.092$, $p = .042$; therefore, the covariates of skills and interest were dropped from the analysis. A significant differences was found for aggravation, $F(1, 35) = 2.866$, $p = .032$, $\eta^2 = .080$. A planned contrast revealed an insignificant difference between low and high disidentification, $p = .052$, 95% CI [-1.026, .004].

Taken together, the analyses demonstrate that playing on a team that is not highly differentiated from the default outgroup was significantly different from teams that are highly distinguished from their gameplay opponents for state hostility factors of aggravation and feeling mean. For all three state hostility variables those in the low disidentification conditions reported more feelings of aggression compared to those in the high disidentification condition (see Table 1). Therefore, H2a is not supported. In fact, the results went in the opposite direction than predicted.

Table 1

Means and Standard Deviations for State Hostility Variables

	N	Feeling Mean		Lack of Positive Feelings		Aggravation	
		M	*SD*	*M*	*SD*	*M*	*SD*
Pretest							
Low Disidentification	19	1.451	.654	2.339	.610	1.588	.865
High Disidentification	18	1.268	.325	2.368	.544	1.428	.496
Competition	33	1.338	.520	2.431	.522	1.536	.604
Total	**70**	**1.350**	**0.517**	**2.390**	**0.546**	**1.523**	**0.640**
Posttest							
Low Disidentification	19	1.956	1.068	2.719	.776	2.053	1.050
High Disidentification	18	1.401	.665	2.488	.577	1.500	.790
Competition	33	1.435	.501	2.572	.723	1.540	.604
Total	**70**	**1.570**	**0.762**	**2.591**	**0.702**	**1.670**	**0.816**
Outcome							
Win	20	1.555	.917	2.505	.704	1.554	.839

Table 1 (cont'd)

Loss	17	1.598	.634	2.635	.689	1.781	.797
Total	**37**	**1.579**	**0.764**	**2.576**	**0.693**	**1.679**	**0.818**

H3a suggested that those in the team competition conditions (high/low) who won their game would report lower feelings of state hostility compared to those who lost. In sum, 20 players won their game compared to 17 who lost. A series of one-way ANCOVAs were conducted examining comparing the state hostility variables of those in the team competition conditions (low outgroup disidentification and high outgroup disidentification), controlling for the pretest state hostility factors, video game interest, and video game hockey skills. The covariates were not significantly related to feeling mean, lack of positive feelings, or aggravation; therefore, they were dropped from the analysis for all three variables No significant differences were found for feeling mean, $F(1, 36) = .014$, $p = .453$, $\eta^2 < .001$.. Nor were significant differences found for lack of positive feelings, $F(1, 36) = .009$, $p = .924$, $\eta^2 < .001$. No significant differences were found for aggravation, $F(1, 36) = .345$, $p = .561$, $\eta^2 = .010$. The results indicate that the outcome of the game had no effect on feelings of state hostility. Thus, H3a is not supported.

Ingroup and Outgroup Affiliation

H2b predicted that those in the low disidentification condition would report less ingroup affiliation than those in the high disidentification condition. A one-way ANCOVA was conducted comparing high outgroup disidentification and low outgroup disidentification, controlling for the pretest ingroup affiliation. None of the covariates were significantly related; therefore, they were dropped from the analysis. No significant differences were found between the groups, $F(1, 36) = .080$, $p = .390$, $\eta^2 = 002$. Thus, high disidentification did not have a significant effect on ingroup affiliation. Therefore, H2b is not supported (see Table 2).

H2c suggested that those in the low disidentification condition would report greater outgroup affiliation than those in the high disidentification condition. A one-way ANCOVA was conducted compare the outgroup affiliation of those in low disidentification and high disidentification, controlling for the pretest covariate of outgroup affiliation, skills, and interest. However, the covariates were not significantly related; therefore, they were dropped from the equation. No significant differences was found among the groups, $F(1, 36) = .385$, $p = .270$, $\eta^2 = .011$. The results indicate that being more strongly disidentified with an outgroup had no effect on outgroup affiliation. Thus, H2c is not supported.

Table 2

Means and Standard Deviations for Ingroup and Outgroup Affiliations Variables in Team Competition Conditions

	N	Outgroup Affiliation		Ingroup Affiliation	
		M	*SD*	*M*	*SD*
Pre-gameplay					
Low Disidentification	19	2.847	.782	3.708	.545
High Disidentification	18	2.677	.680	3.514	.463
Total	**37**	**2.770**	**0.718**	**3.583**	**0.538**
Post-gameplay					
Low Disidentification	19	2.861	1.157	4.028	.865
High Disidentification	18	2.584	1.025	3.926	.746
Total	**37**	**2.732**	**1.068**	**4.005**	**0.81696**
Outcome					
Win	20	2.782	1.04	2.688	1.256
Loss	17	2.921	.634	2.764	.841
Total	**37**	**2.859**	**0.837**	**2.723**	**1.072**

H3b predicted that those on winning teams in the team competition conditions would report greater ingroup affiliation compared to losing teams. A one-way ANCOVA was conducted examining comparing the ingroup affiliation of winning and losing teams in the team competition conditions, controlling for the pretest ingroup affiliation, skills, and interest. The

covariates were not significantly related to the variable; therefore they were dropped from the analysis. Winners did report increased feelings of ingroup affiliation; however, the difference was not significant, $F(1, 36)= .450$, $p = .254$, $\eta^2 = .013$. Therefore H3b is not supported.

H3c suggested that those on winning teams in the team competition condition would report less outgroup affiliation compared to losing teams. A one-way ANCOVA was conducted comparing the outgroup affiliation of winning and losing teams in the team competition conditions, controlling for the pretest outgroup affiliation, interest, and skills. The covariates were not significantly related to the variable; therefore they were dropped from the equation. Winners did report less outgroup affiliation; however, the difference was not significant, $F(1, 36) = .117$, $p = .369$, $\eta^2 = .003$ Therefore, H3c is not supported.

Taken together, the results indicate that outcome has no effect on feelings of either ingroup or outgroup affiliation.

Cooperation

Cooperative behaviors were measured discretely: participants chose whether to cooperate, compete, or withdraw with their gaming partner. Those in team competition conditions also were asked whether they chose to cooperate, compete, or withdraw with one of their gaming opponents (member of the outgroup) (see Appendix D). They were then asked to predict whether their gaming partner would choose to cooperate, compete, or withdraw, indicating their level of trust. Those in team competition conditions also were asked to predict whether one of their gaming opponents (who they chose to compete with was not specified) would choose to cooperate, compete, or withdraw, indicating the level of trust in an outgroup member. In all, four participants chose to "withdraw" cooperation with their gaming partner ($n = 4$). The same four also predicted that their gaming partners would choose to "withdraw" ($n = 4$). Only one

participant chose to "withdraw" against their gaming opponent (n = 1). No participants predicted that their gaming opponent would "withdraw." The total number of participants who chose "withdraw" was too small to analyze. Therefore, they were dropped from the cooperative behavior analysis, respective to each cooperative behavior's category.

Due to the categorical nature of the dependent variables, a series of logistic regressions were used to examine the relationship between playing in a team competition with high or low disidentification or playing in a pure competition condition, with cooperative behaviors (cooperation and trust) as the dependent variables.

The results of the logistic regression modeling are given in Table 3, with the odds ratio, 95% confidence interval, and probability values for each category of the independent variables determining the selection of *cooperation* ("I choose to cooperate) or *trust* ("My partner/opponent will choose to cooperate"). Game outcome (win/loss) was not significant to the cooperation nor trust prediction models.

Table 3

Results from the Logistic Regression Models Predicting Cooperative Behaviors from Team Competition Compared to Pure Competition (H1b and H1c)

	Cooperation (opponent)				Trust (opponent)			
	β	S.E.	*p*	Odds	β	S.E.	*p*	Odds
Team Competition	.210	.579	.716	1.234	.067	.540	.901	1.069

H1b predicted that those engaged in team competition would display more cooperation with outgroup members than those playing in the pure competition condition. Those playing in team

competition were not significantly more likely to choose to cooperate (odds ratio = 1.234 p = .716) than those in pure competition (see Table 3).

H1c predicted that those in team competition conditions would be more trusting than those in the pure competition condition. However, the results indicate that they were no more likely to trust that their opponents would cooperate (odds ratio = 1.069, p = .901) than those in pure competition (see Table 3). Thus, H1b and H1c are not supported.

H2d proposed that those in the low disidentification condition would be less likely to cooperate with ingroup members than those in the high disidentification condition. The results show that low disidentification was not a significant predictor in the likelihood of choosing to cooperate with a partner compared to high disidentification (odds ratio = 1.154, p = .855). Those with low identification are only about 1.15 times more likely to choose to cooperate compared to those who are highly identified (see Table 4). Thus, H2d is not supported.

Table 4

Results from the Logistic Regression Models Predicting Cooperative Behaviors within Ingroups for Low Disidentification compared to High Disidentification (H2d and H2e)

	Cooperation (partner)				Trust (partner)			
	β	S.E.	*p*	Odds	β	S.E.	*p*	Odds
Low	.143	.781	.855	1.154	-.349	.731	.633	.705

H2e proposed that those in the low disidentification condition would be less trustful of ingroup members than those in the high disidentification condition. However, low disidentification also was not a significant predictor of trusting that their partners would choose to cooperate (odds ratio = .705, p = .633). Those in the low identification condition were only

about .705 times more likely to trust their partners would cooperate (see Table 4). Thus, H2e is not supported.

H2f suggested that those in the low disidentification condition would be more likely to cooperate with outgroup members compared to those in the high disidentification condition. However, the analysis indicates that those in the low disidentification condition are not more likely to cooperate (odds ratio = .357, p = .164) than those in the high disidentification condition (see Table 5). Thus, H2f is not supported.

Table 5

Results from the Logistic Regression Models Predicting Cooperative Behaviors within Outgroups for Low Disidentification compared to High Disidentification (H2f and H2g)

	Cooperation (opponent)				Trust (opponent)			
	β	S.E.	*p*	Odds	β	S.E.	*p*	Odds
Low	1.030	.739	.164	.357	-.118	.660	.858	.889

H2g predicted that those in the low disidentification condition would trust outgroup members more than those in the high disidentification condition (see Table 4). However, low disidentification was not a significant predictor of trust (odds ratio = .889, p = .858) (see Table 5). Thus, H2g is not supported.

H3d suggested that those who win a game would be more likely to cooperate with ingroup members than those who lost. However, winners are not significantly more likely to cooperate (odds ratio = .629, p = .553) (see Table 6). Thus, H3d is not supported.

H3e predicted that winners would be more likely to trust other ingroup members than losers (see Table 6). However, the results indicate that is not the case, as winners are no more likely to

trust their partner's cooperation than losers (odds ratio = .595, p = .479) (see Table 6). Thus H2e is not supported.

Table 6

Results from the Logistic Regression Models Predicting Cooperative Behaviors within Ingroups for Winning Teams compared to Losing Teams for Team Competition Conditions (H3d and H3e)

	Cooperation (partner)				Trust (partner)			
	β	S.E.	*p*	Odds	β	S.E.	*p*	Odds
Outcome (win)	.464	.783	.553	.629	-.519	.734	.479	.595

H3f suggested that those who win a game would be more likely to cooperate with outgroup members than those who lost. However, winners are not significantly more likely to cooperate (odds ratio = 1.960, p = .348) (see Table 7). Thus, H3f is not supported.

Table 7

Results from the Logistic Regression Models Predicting Cooperative Behaviors within Outgroups for Winning Teams compared to Losing Teams for Team Competition Conditions (H3f and H3g)

	Cooperation (opponent)				Trust (opponent)			
	β	S.E.	*p*	Odds	β	S.E.	*p*	Odds
Outcome (win)	.673	.717	.348	1.960	.083	.662	.900	1.086

Finally, H3g predicted that winners in team competitions would trust outgroup members more than losers. However, the results indicate that they are no more likely to trust outgroup members than losers (odds ratio = .1.086, p = .900) (see Table 7). Thus, H3g is not supported.

In all, the logistic regression results demonstrate that those who are highly distinguished from their default outgroup opponents are not any more or less likely to cooperate or trust than those who are not strongly differentiated from the outgroup.

CHAPTER 5

Discussion

Just as the majority of video game research has positioned non-violent content against violent content in a dichotomy of good and bad (see Anderson et al., 2010), the relatively limited research examining the effects of cooperation and competition are slipping into the same black and white mindset. Competition has been positioned as having limited, potentially negative benefits while cooperation facilitates the positive, prosocial effects of video game play (e.g. Greitemeyer, Traut-Mattausch, & Osswald, S. 2012; Schmierbach, 2010; Schmierbach et al., 2012; Velez, Greitemeyer, Whitaker, Ewoldsen, & Bushman, 2015). However, these studies often neglect to acknowledge that the essence of video games is their competitive atmospheres and environments. Examining the effect of intergroup or team competition may be better suited to understanding the complex social interactions and effects of modern gaming, particularly with regard to the new norm of multiplayer, social game play.

The shift from solo to social game play may have altered the relationship between content and game play, and players' subsequent behaviors and reactions. With regard to violent video game play, researchers have found that cooperative social interactions may attenuate players' aggressive affect (Eastin, 2007), cognitions (Schmierbach, 2010) and behaviors (Velez et al., 2015) while increasing prosocial outcomes (Crouse & Peng, 2014; Ewoldsen et al., 2012; Greitemeyer & Cox, 2012; Velez et al., 2012). However, these studies focus specifically on cooperative interactions during violent video game play in which players are exposed to graphic violence in kill-or-be-killed situations. Although some research is beginning to examine how specific types of social identification and interactions with ingroup and outgroup members affect subsequent post-game play behaviors (Crouse & Peng, 2014; Ewoldsen et al., 2012; Velez et al.,

2012; Velez, 2015), there is still relatively little examining how the type of competition may affect outcome, particularly when players engage with a non-graphically violent genre, such as a multiplayer sports game. This study examined whether the type of competition and social identification with the outgroup could supersede the potentially negative effects of a competitive, multiplayer video game, according to the predictions of social identity theory.

Social Identity Theory

Social interactions among cooperative players may supersede the aggression and violent content. As players form ingroups with their teammates, they behave in ways that promote their team's identity over opposing teams, or the outgroups. According to SIT, players accomplish this by behaving prosocially toward those they consider ingroup members and aggressively toward those considered outgroup members. In general, researchers have found that games with known out-groups (competitive games) elicit more aggressive responses (Schmierbach, 2010) whereas cooperative games, with a known in-group, increase cooperative behaviors (Ewoldsen et al., 2012).

Previous studies also have found that players who played cooperatively even on violent video games often displayed increased prosocial behaviors (Crouse & Peng, 2014; Ewoldsen et al., 2012; Greitemeyer & Cox, 2013; Greitemeyer et al., 2012; Velez et al., 2012) or decreased aggression and hostility (Eastin, 2007; Schmierbach, 2010; Velez et al., 2012). Participants in the current study played competitively on a team or in pure competition against a confederate. Research in realistic conflict theory and SIT suggest that the cooperative elements present in team or intergroup competitions may be enough to overcome the types of competitive elements that may facilitate conflict and subsequent aggression (Sherif, Harvey, White, Hood, & Sherif, 1961; Tajfel & Turner, 1979; Tauer & Harackiewicz, 1999). Contrary to expectations, the results

from this study indicate that playing on a team on a low outgroup disidentification team increases state hostility more than playing in pure competition. In other words, expanding the ingroup to include opponents in team competition increased feelings of hostility more than those playing in pure competition modes or in traditional ingroup vs. outgroup team competition.

Velez et al. (2012) suggested that cooperation may overcome the discrimination responses triggered by an out-group member, as predicted by social identity theory. Similar to the current study, Velez et al. (2012) required players to play in an online multiplayer match in separate rooms. The participants met each other before hand wherein a confederate wore a t-shirt denoting in-group status (same university) or outgroup status (rival university). It was expected that in-group members would engage in more prosocial behaviors with each other than with the outgroup. Velez et al. (2012) suggested that cooperation may overcome the discrimination responses triggered by an out-group member. Similarly, it was expected that in-group members engaged in competition against another pair would identify more strongly with one another (Tajfel & Turner, 2001). Working on the same task (i.e. playing a video game in an experiment) may have created an in-group stronger than the group status manipulation. Although the authors found the expected results for competition and cooperation, they found limited results for in-group and out-group effects. They suggested that the game mode (competition or cooperation) may have had a stronger effect than group status. However, the current study's results indicate that clearly defining an ingroup and outgroup through the MGP had a small, but significant effect.

SIT researchers and video game scholars alike have lauded cooperative interactions among ingroup members as a potential cure-all for the potentially destructive nature of competitive and/or violent nature of video games. It stands to reason to expect that expanding the ingroup to

include all video game players would facilitate increased cooperation and prosocial feelings among all players. However, the null results of the current study indicate otherwise. It may be that maintaining the default us vs. them social identity categorization set up by the video game itself decreases feelings of aggression as players are not in conflict over their own social identities. Players may be more comfortable in these default groups. Those in the low disidentification condition, in which all players were categorized as the same ingroup, may have felt increased feelings of hostility because the competitive atmosphere conflicted with the traditional us vs. them team competition mentality. Those in the low disidentification condition believed that all four players were part of the same MGP, or ingroup. The only difference between the four players was that two were playing as opponents, creating a default outgroup. It may be that engaging in a competitive event with those who are seen as other ingroup members threatened their social identities, resulting in feelings of increased aggression (Branscombe & Wann, 1992; Branscombe et al., 1993). When the ingroup is expanded to include competitive opponents, players may feel conflicted over why they are battling their teammates and having their own actions to achieve the goal intentionally blocked. These feelings of conflict may increase levels of aggression. Feelings of increased aggression may have served to restore their default identities and maintain an outgroup, rather than continue to socially identify as members of the same ingroup, even with those with whom they were in direct competition. While those in high outgroup disidentification and pure competition conditions may have seen their opponents as in a sufficiently different outgroup; thus, not triggering feelings of hostility.

Although not part of goal of the study, it also was found that playing the game had an effect on participants, such that they were more hostile after playing than before for two of the state hostility factors – feeling mean $t(70) = -2.423$, $p = .018$, and lack of positive feelings $t(70) = -$

2.010, $p = .048$. There was no significant difference between before and after game play for aggravation $t(70) = -1.334$, $p = .187$. Further post hoc analysis revealed that the difference from before and after game play was significant only for MGP from their opposition team. Two state hostility variables were significantly different – feeling mean, $t(18) = -2.464$, $p = .024$, and lack of positive feelings, $t(18) = -2.259$, $p = .037$. Aggravation was not significantly different before and after game play. The high disidentification and competitive conditions did not significantly differ from before and after.

The before and after results provided additional support that social identity categorization was a significant factor in feelings of aggression. Highly disidentified participants had a similar outgroup mindset as those in pure competition conditions. Their opponents (i.e. the outgroup) were well defined and significantly differentiated from themselves. Because of this social stratification, participants were not at war with their own social identities. Their identities were secure with the knowledge that there was a clear ingroup playing against a clear outgroup. However, for those in the low disidentification condition, the distinction between ingroup and outgroup became blurred. The MGP categorized teams and opponents into the same social identity. Playing the video game, however, created new competitive social identities of us vs. them. Ingroup members are cooperative and not in competition with one another. This as well as the competing identities may have facilitated increased feelings of aggression because it may have helped to delineate the outgroup.

Ingroup and Outgroup Affiliations

Engaging in cooperative activities such as team competition with in-group members has been found to encourage increased social identification with that member, such that members like each other more than they like outgroup members. SIT research suggests that increasing the

distinction of differences between ingroup and out group members heightens affiliation felt among ingroup members and decreases affiliation toward outgroup members. The current results indicate that being highly distinguished from an outgroup lessens affiliation for both ingroup and outgroup members; although not significantly. Those who were highly disidentified or distinguished from their gaming opponents (outgroup members) tended to report having lower feelings of affiliation across the board compared to those who were not highly disidentified. Although these differences were not significant, it may be due to the low power in the study because of the low sample size ($N = 37$) (Cohen, 1992). A post hoc power analysis revealed a low power of 0.078 for ingroup affiliation and 0.115 for outgroup affiliation (Soper, 2013). Increasing the number of participants may drive this trend into significance.

Even before game play, being placed on a team resulted in increased feelings of affiliation toward the outgroup, particularly for those who were not highly disidentified from the outgroup. The current study supports previous research suggesting that team competition increases ingroup affiliation, particularly in traditional team competition or pure competition conditions. Although outside of the goals of the study, analysis revealed that the game play and context may have had an impact on affiliation when looking at before and after effects. For those in team competition conditions, there was a significant difference between before and after game play for ingroup affiliation, $t(36) = -2.539$, $p = .016$, such that for those in the high disidentification condition felt increased affiliation toward their partner significantly more after game play, $t(18) = -2.504$, $p = .022$. Competitors also reported feeling increased affiliation toward their opponents significantly more after (M = 3.001, SD = .393) game play than before (M = 2.481, SD = .493), $t(32) = -6.024$, $p < .001$. In line with the current study's predictions, those in the low disidentification

condition liked the outgroup more than highly disidentified participants; although the difference between before and after game play was about the same and not significant.

Although those in the competitive condition were also told they were the in the same MGP as their opponent, the direct challenge of one-on-one game play emphasized the competitive nature of the situation rather than similarities between the two players. Both the significant difference between low disidentification and competition and the lack of differences between high disidentification and competition is in line with SIT, which suggests that the context of competition and cooperation primes people to like or dislike outgroups. Low disidentifiers had the most in common with the outgroup since they were part of the same MGP, while those in the high and competitive conditions had the least in common with the outgroups.

After game play, however, those playing competitively were the most highly affiliated with their opponent out of all the groups. Similarly, those who were highly identified were more affiliated their opponents significantly more than before gameplay; albeit, they reported less overall outgroup affiliation than those who were in the low disidentification group. Those in the low condition also reported feeling more affiliated than their opponent team a little more, but not significantly. This may indicate that engaging in a common, fun activity increases affiliation despite the competitive circumstances. Social interdependence theorists have suggested competition may be constructive when participants engage in fair, rule-based, zero-sum challenges (Johnson, 2003), such as a video game. Not only are these types of competitions more fun, but they also may result in increased cooperative and affiliative behaviors (Greitemeyer & Cox, 2013; Tjosvold et al., 2003). The high disidentifiers felt less affiliated with the outgroup after game play, albeit not significantly. This is in line with SIT as the game play may have

heightened the distinction between groups. However, the constructive context of the competition may have lessened the degree to which the highly disidentified disliked the outgroup.

Only a few previous studies have specifically examined the effects of changing the default ingroups and outgroups (Velez et al., 2012; Velez, 2015); however, one study may offer insight into how manipulating the social dynamics of traditional pure competition and team competition conditions affects outcome. Schmierbach et al. (2012) examined how well players liked their game play partners (friendly or unfriendly) and enjoyed playing a competitive sports game (cooperatively or competitively). They found that even when playing against an unfriendly opponent, players still enjoyed playing competitively more than playing cooperatively even though they reported liking that opponent the least. Particularly in sports games, it may be that players expect to play against one another in dyadic game play. Those who played competitively against a friendly opponent both enjoyed the experience the most and liked their partner the most. It may be that a zero sum challenge of pure competition offers players the least amount of cognitive dissonance with regard to their social identities. Those in the unfriendly cooperative condition, which would incur the most conflicting social identities, reported enjoying the experience the least. This helps to shed light on the findings of the current study, in which the highly disidentified and pure competition players felt increased affiliation toward their opponents compared to the low disidentified groups. These traditional and default team competition roles also offer the least conflict over social identities. Players were not struggling to maintain a positive identity even with their opponents. Because of this, they felt more affiliation overall toward their game player partners.

Cooperative Outcomes

Although a growing body of literature has supported the idea that cooperation within games promotes cooperative behaviors, the current results do not provide additional support for this line of thought. Cooperative behaviors were measured with two items from a modified Prisoner's Dilemma game. The results show no significant differences between those who played in team competition conditions and pure competition condition. Nor were there significant differences between those who were more or less socially identified with their game play opposing team. However, it may be that the low power of the study affected the results.

According to SIT, playing cooperatively encourages feelings of belonging to a group, or in-group. When cooperating ingroup members work together toward a common goal, they continue to engage in behaviors that benefit ingroup members (e.g. cooperation) while minimizing behaviors that would benefit outgroup members (e.g. not cooperating). Additionally, they would expect out-group members to behavior the same way. The majority of studies examining cooperation and competition (and the default in- and out-groups it creates) have found that cooperation in game leads to pro-social behaviors after game play (e.g., Crouse & Peng, 2014 Ewoldsen, et al., 2012; Greitemeyer & Cox, 2013; Greitemeyer et al., 2012; Schmierbach, 2010; Velez et al., 2012), while a few others have found small or no effects from in-game cooperation (e.g., Velez et al., 2012).

The Prisoner's Dilemma problem. Researchers have used several dependent measures to test for differences in playing competitively or cooperative. Studies that have used the prominent video game theoretical framework of the General Aggression Model have primarily tested for aggression measures, such as cognition, state hostility, or affect, and cooperative actions in a Prisoner's Dilemma task (Crouse & Peng, 2014; Ewoldsen et al., 2012; Velez et al., 2012; Velez,

2015). The Prisoner's Dilemma task examines the mathematical likelihood of cooperation based on cooperative kin theory (Axelrod, 1984) and evolutionary game theory. Evolutionarily, competition is considered a fairly well-understood and necessary mechanism within nature to ensure future offspring in an environment with scarce resources or to show dominance over an opponent (Axelrod & Hamilton, 1981; Beersma et al., 2003). Cooperation is more of a puzzle. Natural selection predicts that people would behave selfishly in order to ensure their own access to scarce resources. Yet, cooperation regularly occurs not only among humans, but also among other living beings. However, the Prisoner's Dilemma only captures cooperative outcomes, not intentions. In doing so, it is less a measure of the intention to cooperate than willingness to engage in risky behavior.

Although it has many versions, the basic setup for the Prisoner's Dilemma involves two prisoners being questioned about a crime. Each has the choice to defend the other's innocence or betray the other's guilt. The prisoners are not allowed to know the other's actions until their choices have been made. If both prisoners betray each other, each receives no pay out. If both prisoner's defend each other they both receive a pay out, but it is less than if one betrays while the other defends. Thus, the most profitable option is for Prisoner A is to betray Prisoner B while the Prisoner B defends Prisoner A's innocence (see Appendix D). The majority of the time, researchers have found that people tend to default to mutual cooperation (i.e. both prisoners defend each other).

One of the criticisms of the Prisoner's Dilemma is that most of those who play the game default to mutual cooperation. Some researchers have asked participants to play multiple iterations of the game so that they may gauge how participants react and respond to their partners' actions (Velez, 2015). However, these studies tend to find that players default to mutual

cooperation in which both parties choose the cooperative actions that are most beneficial for both sides. Its high rate of cooperation may be attributed to the high risk scenario - either cooperate or risk getting nothing (Kümmerli et al., 2007). Kümmerli et al. (2007) suggested that a better test of cooperative intentions is the snowdrift game. In this game, two drivers are trapped on opposite sides of a snowdrift. Each driver may stay in the car or shovel snow to clear a path. The pay off is similar to that of the Prisoner's Dilemma (Appendix D), but both drivers benefit even if one chooses to sit in the car. The risk for cooperation is lower. Kümmerli et al. (2007) tested both tasks and found that people cooperated more in the snowdrift game because they could obtain individual benefits while cooperating even if the other defected.

The current study used a modified version of the traditional Prisoner's Dilemma, following in the footsteps of previous video games studies. In general, video games studies that have used a version of the Prisoner's Dilemma task have found that people who play cooperative games are more likely to choose mutual cooperation compared to those who play competitively. However, it also may be that those who play competitively are more likely to engage in riskier behaviors than those who play cooperatively (Wilson & Daly, 1985). In the current study, it may be that playing a sports video game may have primed players toward riskier behaviors. The majority of previous video games research using a Prisoner's Dilemma task have used graphically violent kill-or-be-killed types of stimulus games, even in the cooperative conditions. Although the element of competition is there, the punishment for risky behavior is much higher than in a sports game. In the hockey game used for the current study, players only risk losing a point or a small penalty punishment rather than losing their lives and having to start over.

Some research has shown that players respond differently to various video game genres (Eastin & Griffiths, 2006). Most of the games research that has examined cooperation in

multiplayer games has used a shooter video game that paired players in kill-or-be-killed fantasy scenarios against other players or computer-generated foes. The inherent competitiveness associated with a sports game may have influenced players to think more competitively than cooperatively (Adachi & Williams, 2011), choosing to act in a riskier manner. In all, nearly one-third of the players chose to compete with their partners, regardless of the gaming condition. For those in team competition, 26.5% competed with in-group members. In the pure competition condition, 32.7% competed. A similar trend applied to trust in their partners, with nearly one-third predicting their partner would also compete with them (team competition: 31.4%; 42.9% pure competition). Team competitors were even less likely to cooperate with or trust outgroup members with two-thirds (66.7%) choosing to compete against opponents and more than half (54.7%) predicting their opponent would compete against them. The differences between low and high disidentification conditions were not significant. However, this may be an artifact of the low power and sample size of the study. Future research, should examine the question of cooperation and competition after playing a competitive sports game with a sufficient sample size.

The snowdrift game (also known as the Hawk-Dove game) may be a better test of whether cooperative game play elicits increased cooperative intentions compared to competitive game play. Because the game eliminates much of the high risk inherent in the Prisoner's Dilemma, it may better represent if competitors intended to be cooperative, particularly if sports games are priming players to engage in riskier behaviors. It is likely that cooperative game play would continue to elicit cooperation in the snowdrift game. However, competitive game players may be more likely to choose to defect in this instance as much of the risk for the other player is removed. Everyone benefits a little even in a betrayal scenario. Currently, the majority of studies

examining cooperative outcomes have used the same type of modified Prisoner's Dilemma task, whether as a one-shot or iterative exercise. Yet, different genres of video games require different responses, strategies, and behaviors from players. It may be that matching these differences to the games themselves will help researchers to determine what aspects of video game play facilitate beneficial outcomes and why these occur.

Outcome

Hostility toward the outgroup and ingroup bias in victory may be mitigated depending on the reason for winning. An "easy" victory is not as valued and may not result in outgroup deprecation (Turner, 1975). Additionally, the level of identification with an ingroup also may have affected feelings regarding the outcome. When people have low ingroup social identification, failure to win may be an indication that other members cannot be expected to contribute, therefore one's own motivation to contribute is diminished (De Cremer & van Dijk, 2002). When ingroup identification is high, negative feedback (losing) signals that the group is in need and one should work harder at achieving the group goals and cooperate more (Brewer, 2008; De Cremer & van Dijk, 2002). However, those with high identification with a sports team have reported increased aggression compared to those with low identification when the team lost (Wann, 1993). When playing a sports game, researchers Griffiths et al. (2015) found that losers were significantly more hostile than winners. However, outcome did not play a significant role in the current study.

The current results indicate that outcome may not be an important factor. It may be that the MGP and game play itself work to supersede the importance of who wins or loses the match. It also may be that although all of the players had experience with sports video games before, few

had encountered this specific game. Players may not have had any expectation toward winning or fear of losing when playing a new game.

Violence vs. Competition: The Issue of Genre

By and large, video games research has focused on violent shooter-type video games (see Anderson et al., 2010) even though some studies have demonstrated that the type of game played impacts game play outcomes (Adachi & Willoughby, 2011; Eastin & Griffiths, 2006). Eastin and Griffiths (2006) found that players were significantly more aggressive when playing an arena-style fighting game compared to a shooting or driving game, respectively. More recently, researchers have begun examining how the context of the game (e.g. playing cooperatively or competitive) affects game players. However, most of these types of studies have used two or more different stimulus games in each condition, rarely matching the competitive and cooperative conditions along the lines of pacing, difficulty, or competitiveness (Adachi & Willoughby, 2011). Anderson and Carnagey (2009) attempted to settle whether violent content or competition had a bigger impact in their "competition-only hypothesis" by examining violent sports games and a non-violent sports games, found to be equitable with regard to competitiveness. The competition-only hypothesis suggests that competition, not violent content, plays a larger role in aggressive outcomes post-game play. Across their three studies, they found that nonviolent games were seen as slightly more competitive than the violent games. However, the violent content games significantly increased aggression whereas the competitive game did not. Adachi and Willoughby (2012) pointed out that the violent games (MLB Slugfest Baseball or NFL Blitz Football), were more difficult and faster paced than the nonviolent games (MVP Baseball 2004 or Madden Football). Because the games were not similar on many important dimensions, Adachi and Willougby (2012) suggested that it difficult to interpret their results and

conclude whether the violent content or differences in difficulty and pace influenced participants more.

Anderson and Carnegey's (2009) conclusion that it was the violence in the game producing aggression rather than competitiveness may be flawed for another reason. It may be that Anderson and Carnegey (2009) were examining the effects of genre, not an overall effect of competition or violence. The violence in the sports games may have triggered more aggressive responses, in line the theoretical assumptions of the General Aggression Model (see Anderson & Morrow, 1995; Anderson & Bushman, 2002). The General Aggression Model has been the most widely used theoretical framework to examine the idea that violent games impart aggressive tendencies on their players, primarily through mechanisms involving social learning (see Anderson et al., 2010). The current study used a typically violent sports game that depicted violence with cartoon-like outcomes, for example players saw stars circling their heads when their characters were hurt. In line with the GAM, video games research has suggested that even cartoon violence may spark at least limited aggressive effects (Anderson & Bushman, 2002). However, the current study's aggressive affects were limited compared to stronger effects found with research using more violent games (Anderson & Carnegey, 2009; Anderson et al., 2011); therefore, it may be that the social multiplayer environment of sports game play played a larger role than its content.

Video games research has suggested that identification may play a large role in absorbing the game's message or lesson. For violent games, identification with the main character positively predicts increased aggression after game play (Klimmt et al., 2010). For educational games, identification with the main character has been found to impact learning (Peng, 2008). Online groups have been cited as a source for social support and social capital, particularly among teams

of players, or clans. (Ekman et al., 2012; Trepte, Reinecke, & Juechems, 2012). These teams also are a source for identification along with the community of players itself (Van Looy et al., 2012).

SIT suggests that when a group identity is salient, people are likely to conform to that group's norms. An abundance of GAM research has demonstrated that the norm in a shooter game is a violent mentality due to the violent content and goal to kill another player's or computer-controlled character. Relatively, little research has examined the impacts of other video game genres (i.e. sports, driving, puzzle, simulations, etc.). In particular, sports games have different goals than the shooter-type games used for the majority of video games research. Players likely have different expectations when they play a sports game compared to a shooter-type game. In most competitive shooter games, players battle their opponent(s) in an arena-style environment. In these player vs. player modes, players seeks out others and attempts to kill as many as possible. The player or team with the most kills at the end of the match is declared the winner. Asking a player to "kill" others may also serve as an aggressive prime that sports games generally do not have. Although players may be in a similar zero-sum arena style environment in a sports game, they are not asked to kill their opponents. They win by scoring the most points, according to the rules of that particular sport.

Finally, players may have built a tolerance for violence within certain genres. Shooter-style games and arena fighting games have become increasingly violent, with more blood, gore, and horrific ways to die than previous games. As technology has made rendering the details of these gruesome acts more lifelike, it is likely that players have become increasingly desensitized to the violence yet have become accustomed to aggressive responses in the cyclical manner that the GAM predicts (Anderson & Bushman, 2002; Ivory & Kalyanranaman, 2007). Within these games, gore is normal. Such graphically violent content might be out of place in many other

video game genres. Sports arguably contain a significant amount of violence, with players intentionally knocking one another down or throwing each other to the ground; however, it would not be appropriate for a player to brutally attack another player by ripping his or her spine out of the character's body. Comparing the violence inherent in shooter games or even role-playing narrative games to the violence in sports is not equivalent. Many players may be unaccustomed to extreme violence within a sports game; therefore, Carnegey and Anderson (2009) may have caught aggressive responses due to the novelty of violence in sports. Adachi and Willoughby (2011) attempted to breakdown other variables that may have contributed to the aggressive responses (e.g. pacing, difficulty, etc.). However, they also neglected to consider different expectations for different genres. Modern video game players have grown up with video games and are knowledgeable about the rules, cultures, and expectations for different genres of games. Therefore, theories that examine video games as a single unit may not be appropriate for the current and future generations of video game players.

Without additional studies examining genre-based effects, it is difficult to determine the effects of violence, competition, or genre.

CHAPTER 6

Limitations and Conclusions

These results must be considered in light of several limitations. First, participants may have known their playing partners on at least a casual basis as they were recruited from a departmental research pool and may have taken classes together. It may be that playing in a competitive sports game increased competitive feelings among those who knew each other previously as well as the idea that their partner would exact revenge by choosing to compete. It is also possible that meeting FtF before starting the online game play allowed participants to develop preconceived impressions of the other participants, impacting the overall effectiveness of the mechanisms of SIT. Most MGP studies involve FtF encounters (Tajfel, Billig, Bundy, & Flament, 1971); however, SIT and its closely related theory the Social Identity model of Deindividuation (SIDE) (Reicher, Spears & Postmes, 1995) have found that people feel more strongly affiliated with their group identity when they know as few details about other members as possible. For example, Eastin (2007) and Eastin and Griffiths (2009) examined the effect of group size in online violent, multiplayer cooperative and competitive games. They found that regardless of the game mode, larger groups of players were more verbally aggressive than small groups. They suggested this may be due to the relative anonymity, or deindividuation, of online group play in which players did not meet FtF. Meeting FtF in the current study may have given participants an overwhelming amount of information about their ingroup and outgroup members (e.g. race, culture, socioeconomic status,etc.). Visual anonymity may have increased the likelihood of finding the strong outgroup disidentification effects that were predicted. This could be accomplished in future research by either conducting the entire experiment in separate rooms for online-only interactions or having ingroups and outgroups meet in separate rooms.

Additionally, the data was collected in an experimental setting, which did not provide a natural environment for video game play. This may have compromised the results as players were constantly aware of the laboratory setting and did not give as genuine reactions to the stimulus as they would have in a field setting. The limited time of game play also may have not given players enough time for the expected reactions to adequately take hold. Although previous studies have found success in limiting players game play to 15 – 20 minutes, most video game play sessions last considerably longer outside of a laboratory setting. Finally, the experimental setting limited the results because the data was collected during three separate time periods, using two methods of compensation: extra credit and a $10 payment. It may be participants differed in terms of what type of compensation they were awarded. Because the social context varied between groups (paid vs. extra credit), it may be that the individual differences presented a third variable.

The current study also utilized confederates to ensure that each player would have similar experiences. However, the in-game interactions were not analyzed. Although research has found differences between cooperative and competitive game play, scant research has looked at how specific actions during game play increase or decrease post-game actions (Velez et al., 2014). Future research should examine how specific interactions and actions while playing the game facilitate or diminish post-game effects. It may be that a design with three confederates and only one participant would allow observation of in-game interactions both among members of the ingroup and with outgroup opponents.

Previous research has conceptualized cooperative video game play as players who are working together on the same team against a common opponent (Ewoldsen et al., 2012; Greitemeyer et al., 2012; Schmierbach, 2010; Schmierbach et al., 2012; Velez et al., 2012). The

current study indicates that having additional qualities in common with the default outgroup may affect how video game players react after game play both with regard to aggression and affiliation toward other players. For example, the players all were recruited from the Department of Media and Information. This common thread may have impacted the MGP manipulation. However, it is also possible that the stimulus game did not capture true feelings of aggression, as seen by the overall score of low hostility. Players may not have felt any intention to harm another (Anderson & Bushman, 2002) due to the cartoonish violence and nonrealistic graphics. It is possible that the intention to harm definition of aggression is not suitable for non-graphically violent games (Anderson & Carnegey, 2009). Future research should examine changing the definition and measurement of aggression according to the type of game and genre being played. Additionally, the stimulus game was new to the players. Although all participants in the current study were experienced sports video game players, the novelty of the game may not have triggered a highly competitive atmosphere. This novelty may have created a play-like atmosphere in which players were not as concerned over winning or losing the game. Furthermore, the stakes for winning and losing were low. Participants were not given any incentive for winning the match; therefore, they may not have been as invested in the outcome of the video game session.

During the data collection for this study, recruitment was a problem that resulted in a small sample size that provided weak power for its analysis. An *a priori* sample size for multiple regression calculation was performed to estimate the sample size through an online calculator (Soper, 2013). Anderson et al.'s (2010) meta-analysis demonstrated that experimental studies examining video games and aggression ranged in main effect sizes from r - .181 (full samples, N = 3,464) - .210 (raw samples, N = 2,513). Therefore, to generate a medium main effect (d = 0.25)

with an α level of 0.95, and a power of 0.80 (Cohen, 1992), the minimum necessary sample size was determined to be 57 teams of two, or 114 individual participants. However, after three separate rounds of data collection, we were only able to recruit 70 participants. Overall, the hypotheses trended in the predicted directions. It may be that the low sample size lacked the power to detect statistically significant differences of smaller effects.

Conclusions

Practically speaking, this study could have major implications for video game developers. For example, *League of Legends* (LoL) developer Riot Games has been battling negativity within its gaming environment, or "toxicity" by introducing several scientifically-backed measures, such as changing the default open chat channel to an opt-in and introducing an Honor initiative that allows players to promote others for excellence in "teamwork, friendliness, helpfulness, and honor in victory or defeat" (McWhertor, 2012, Oct. 13, p. 1). One of their aims is to "show players what it means to be a positive member of the community" (Skiffington, 2014, Sept. 9, p. 1). However, this has proven to be an ongoing battle for the company. It may be that their efforts to make LoL players feel like they are all part of the same ingroup, even during the game's arena style matches, is self-defeating. Players' social identities may be in conflict as they compete with other ingroup members in the game's zero-sum team challenges. Rather than focus on expanding the ingroups, Riot Games and other developers may have better luck by increasing the similarities among already defined ingroups, or teams. The game randomly assigns players to teams based on skill level. It may be beneficial to include other individual differences, such as psychological similarities, real-world affiliations, or locations. Having another point in common may help to attenuate feelings of aggression and increase a team's cooperation and prosocial feelings during the match. Thus, ultimately reducing the toxicity of the gaming environment.

The current study was designed to advance research into the effects of ingroup and outgroup identification during team competition and pure competition for both aggressive and prosocial outcomes. In contrast with current research trends, this study demonstrated that playing a sports game may nullify any prosocial behavioral effects facilitated by playing cooperatively on a team. In fact, playing a sports game with a teammate had similar effects on cooperative behaviors as playing alone in pure competition against another person. Additionally, in contrast to expectations, increasing the level of social identification with opponents or outgroup members also increased feelings of hostility while creating more socially distinct outgroups led to feelings of aggression no different than playing in pure competition. This provides support that conflict may occur in cooperative circumstances, particularly when ingroup members become dissatisfied with other members of their group. In this instance, ingroup members may have become hostile because they were competing against other members of their ingroup. Future research should examine the extent to which creating larger, more inclusive ingroups leads to greater hostility and aggression rather than cooperation. One way to do this may be to use already existing groups of video game players to capture natural competition.

APPENDICES

Appendix A

Confederate Protocol

What is my job?
Your job is to be a confederate, acting as a participant in this experiment. A confederate is someone who is hired by the researchers to behave in a certain manner.

How much will I be paid?
You will be paid $10 an hour. Each session is expected to last 60 minutes.

What are you studying?
We are examining the dynamics among video game players. We want to see how they behave and interact when competing or cooperating on a team.

Why do you need a confederate?
We want all participants to have the same experience in this experiment. People react differently in situations, making it difficult to control all the variables that may come up. You will act the same with each of the participants, so each of them will have similar experiences.

What does a confederate do?
At no time should the participant suspect that you are a confederate. The participant should believe that you are another undergraduate participant.

What will this experiment entail?
Each participant will first take a brief questionnaire followed by a test examining visual information processing. Then, you and the participants will play a video game for about 20 minutes and take the rest of the questionnaire after that. Depending on the conditions of the experiment, you will either play in a team with another participant or compete against one in a one-on-one match.

What are the conditions of the experiment?
There are two primary conditions to this experiment. You will be doing one of the following with each participant.

10. Teamwork: You will be playing with a participant in competition with another pair (participant + confederate) in a 2 vs. 2 match.
    - For half of the experiments, we will be telling the participants you are paired based on the outcome of a visual information processing test.
    - For the other half, we will be telling the participant that you are paired together at random.
1. Competition: You will be competing with a participant in a 1 vs. 1 match.

What will I be doing?
You will be playing *3 on 3 NHL Arcade* with each participant. You will be expected to behave in a similar manner for all sessions.

How will I behave?
As a participant, you will be friendly with each participant but not overly so. That means that you may smile in a friendly manner and make some small talk, if the participant initiates it. You may offer tips or help during game play, but only if the participant requests help.

Should I try to influence the outcome of the video game?
We would like you to play the game like you would normally. In the team conditions, the participants have been matched based on their skill levels. You will also be playing against another confederate, who should be evenly matched with you. Ideally, you will lose about half of the games.

Will I have to take the questionnaire every time?
After each match, you will take a brief questionnaire to reflect on the match, note the outcome, the friendliness of your teammate and competitor, and the similarity of experience to other matches.

Will I be eligible for the $100 Amazon.com gift card?
No, only participants are eligible for the gift card.

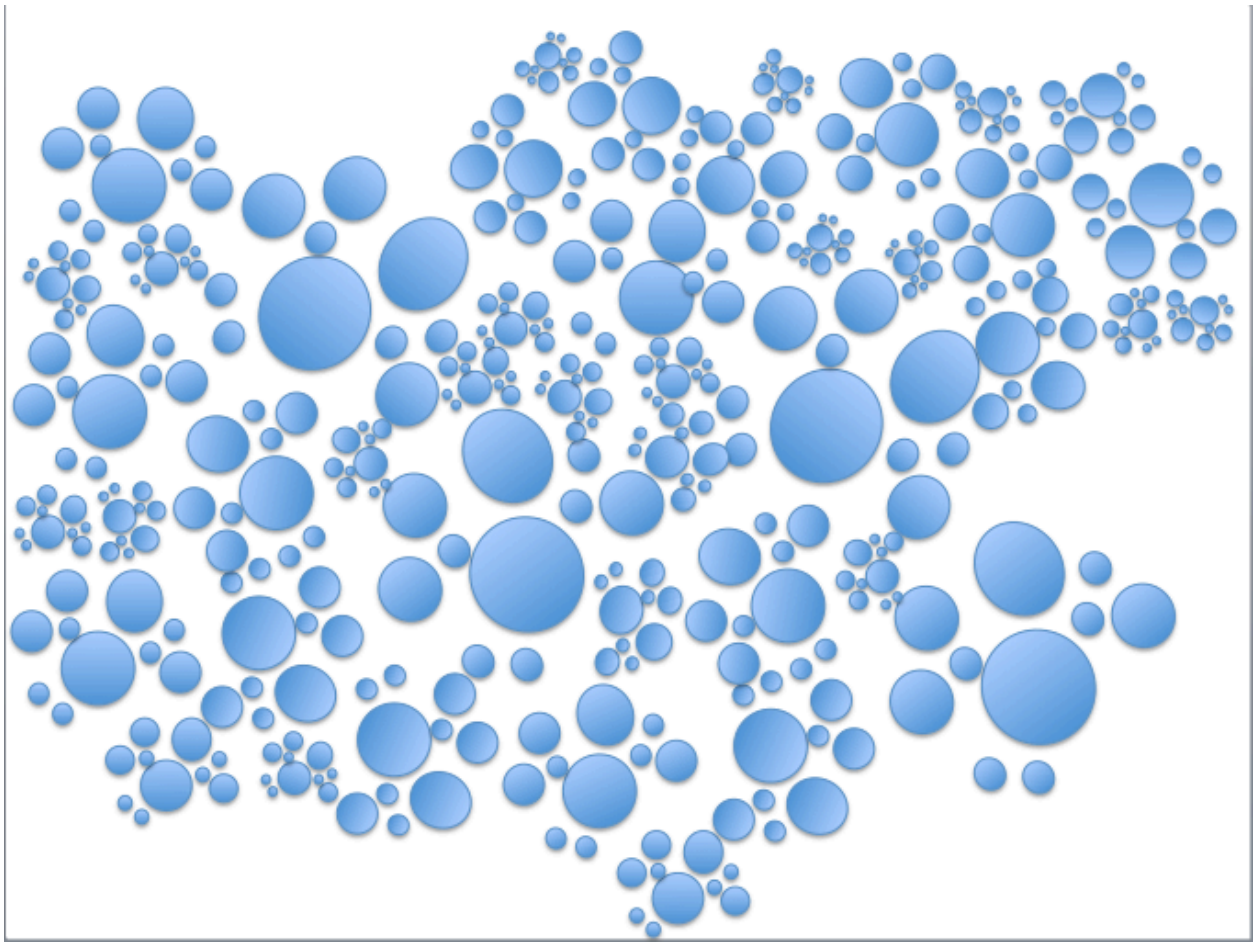
Appendix B

Visual Information Processing Test

Figure 2

Visual Information Processing Test

Please estimate the following diagram _____ (5 seconds).



Appendix C

Brochure Text for the Outgroup Disidentification Manipulation

Figure 3

Brochure Text for the Outgroup Disidentification Manipulation

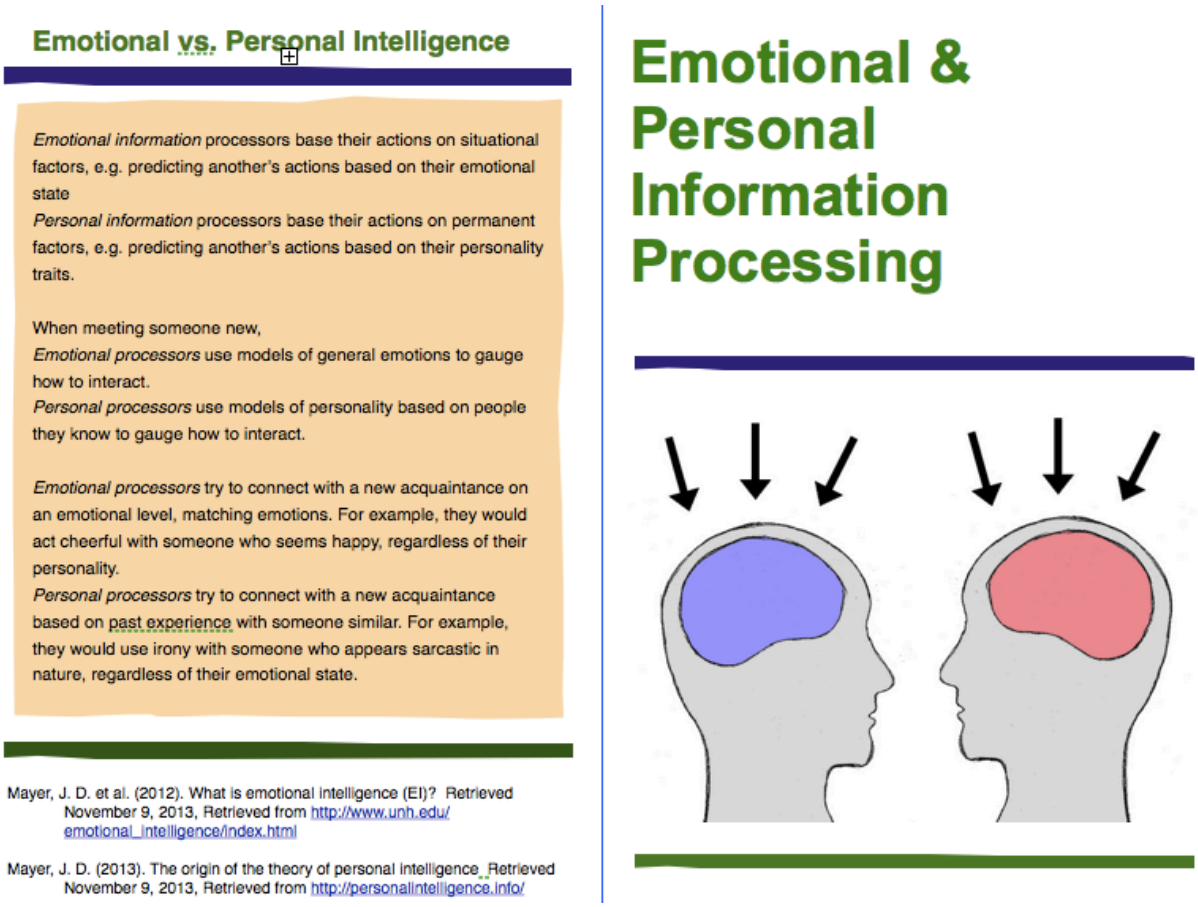
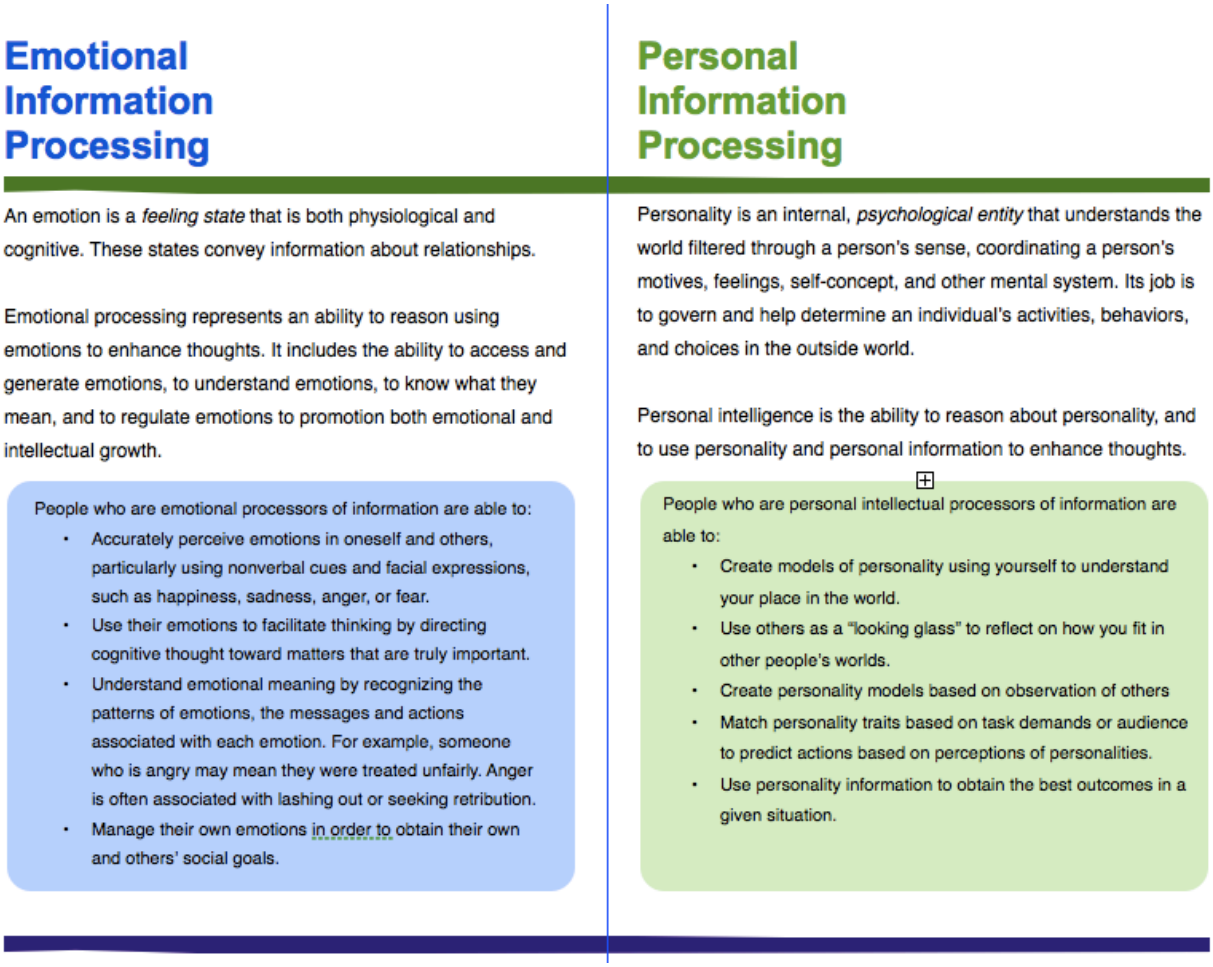


Figure 3 (cont'd)



Appendix D

Modified Prisoner's Dilemma- Cooperative Behaviors Measure

By participating in this experiment, you are automatically entered into a drawing for a $100 gift certificate for Amazon.com. You now have the chance to increase the number of times you are entered in the drawing. You will choose to cooperate or compete with your partner with whom you just played *3 on 3 NHL Hockey*.

First, you have to decide whether to cooperate with your partner or work against your partner. If you choose to COOPERATE with your partner, you could increase the number of drawing entries that you both receive. But if you choose to COMPETE with your partner, you could increase the number of entries that only you receive and could significantly REDUCE the number of entries your partner receives.

Second, you have to predict what whether your partner will work with you or work against you. If you both choose to COOPERATE, you will both receive 4 drawing entries. If your partner wants to cooperate with you, but you decide to COMPETE with him or her, you will get 6 entries while he or she just gets 1. See the chart below for your options.

Finally, you can choose to withdraw entirely, neither competing nor cooperating. If either of you chooses to withdraw, you'll both get 2 drawing entries.

Below is a diagram of your options. Please decide how you'd like to proceed by choosing ONE of the following options:

A. I would like to cooperate. B. I would like to compete. C. I would like to withdraw.

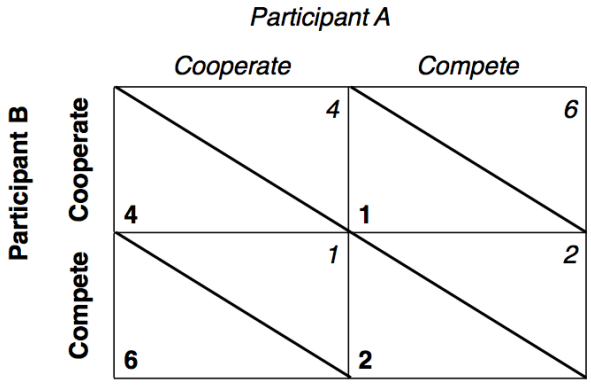
I think my partner is most likely going to choose to:

A. Cooperate B. Compete C. Withdraw

Figure 4

Modified Prisoner's Dilemma Diagram

The following diagram is a chart of your options. Choose your decision and find out how many drawing entries will be allotted to you and your partner based on what you both decide.



Appendix E

Screening Questionnaire: Determination of eligibility

Question sets will appear in the following order. Items within sets will be randomized.

1. How often do you play games (including games played on the console systems such as Xbox 360, PlayStation3, and Wii, computer games, games played on portable devices such as PSP or Nintendo DS, etc)? Please choose one of the following

a. I don't play video games.
b. Once every few months
c. Once or twice a month
d. Once or twice a week
e. Several times a week
f. Every day

*Participants who answer **a** or **b** will be automatically directed to the disqualification text. Other answers will proceed to the next question.*

2. On a monthly basis, how many hours do you spend playing games (including consoles games played on Xbox, PlayStation or Wii, computer games, games played on portable devices such as PSP or Nintendo DS, etc)?

a. 0-1 hours per month
b. 1-5 hours per month
c. 6-15 hours per month
d. 15-25 hours per month
e. 25-40 hours per month
f. +40 hours per month

*Participants who answer **a** will be automatically directed to the disqualification text. Other answers will proceed to the next question.*

3. What is your gender?

a. Male
b. Female
c. Other

*Participants who answer **a** will proceed to the next question. All other participants will be directed to the disqualification text.*

4. Please indicate which of the following sports video games you have played. If a specific game is not listed, but one within the game franchise is included, please indicate your experience

with the franchise. For example, *NBA 2K12* or earlier is part of the same franchise as *NBA 2K14*. If you've played a recent game (since 2010) that is not listed, please write it in the box provided below.

	0 = Never played		1 = Played once					7 = One of my favorite games
NBA 2K14	0	1	2	3	4	5	6	7
NBA Jam 2010	0	1	2	3	4	5	6	7
NBA Live 14	0	1	2	3	4	5	6	7
NCAA Basketball 10	0	1	2	3	4	5	6	7
Fifa 2014 (Soccer)	0	1	2	3	4	5	6	7
Madden NFL 2014	0	1	2	3	4	5	6	7
NCAA Football 2014	0	1	2	3	4	5	6	7
NHL 14	0	1	2	3	4	5	6	7
Tiger Woods PGA Tour	0	1	2	3	4	5	6	7
EA Sports UFC	0	1	2	3	4	5	6	7
Fight Night Champion	0	1	2	3	4	5	6	7
NFL Blitz	0	1	2	3	4	5	6	7
Grand Slam Tennis	0	1	2	3	4	5	6	7
SSX (snowboarding)	0	1	2	3	4	5	6	7

I've also played the following basketball game(s) (released since 2010) _____.

Participants whose average score is less than 2.0 will be disqualified.

Appendix F

Pre-test Questionnaire Measures

Experimenter enter study condition code here: _____
Experimenter enter participant ID here: _____

Ingroup Affiliation - Ingroup Identification (Carr, Vitak, & McLaughlin, 2013; Wang, 2007, November)

Please indicate the degree to which you agree with the following statements about your team partner with whom you just played.

	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
I can see myself as a member of this person's group.*	1	2	3	4	5
I felt involved in this person's group.*	1	2	3	4	5
This person's group was important to me.	1	2	3	4	5
I would be pleased to be a member of this person's group.*	1	2	3	4	5
I feel loyal toward this person's group.*	1	2	3	4	5
I would want to become a member of this person's group.*	1	2	3	4	5
It makes a difference to me how this person's group turned out.*	1	2	3	4	5

Outgroup Affiliation (Doosje et al., 1995)

Please indicate the degree to which you agree with the following statements about the group with whom you competed with during the game you just played.

	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
I identify with that group.	1	2	3	4	5

	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
I see myself as a member of that group.	1	2	3	4	5
I would be glad to be a member of that group.	1	2	3	4	5
I feel strong ties with that group.	1	2	3	4	5

Aggression - State Hostility Scale (Anderson, Deuser, & DeNeve, 1995; Anderson & Morrow, 1995)

Please indicate the degree to which the following adjectives describes how you feel RIGHT NOW.

I currently feel . . .	1 = Does not describe how I feel at all						7 = Accurately describes how I feel
Furious	1	2	3	4	5	6	7
Willful	1	2	3	4	5	6	7
Aggravated	1	2	3	4	5	6	7
Tender	1	2	3	4	5	6	7
Stormy	1	2	3	4	5	6	7
Polite	1	2	3	4	5	6	7
Discontented	1	2	3	4	5	6	7
Like banging on a table	1	2	3	4	5	6	7
Irritated	1	2	3	4	5	6	7
Kindly	1	2	3	4	5	6	7
Unsociable	1	2	3	4	5	6	7
Outraged	1	2	3	4	5	6	7
Agreeable	1	2	3	4	5	6	7
Angry	1	2	3	4	5	6	7
Offended	1	2	3	4	5	6	7
Disgusted	1	2	3	4	5	6	7

Tame	1	2	3	4	5	6	7
Like I'm about to explode	1	2	3	4	5	6	7
Friendly	1	2	3	4	5	6	7
Understanding	1	2	3	4	5	6	7
Amiable	1	2	3	4	5	6	7
Mad	1	2	3	4	5	6	7
Mean	1	2	3	4	5	6	7
Bitter	1	2	3	4	5	6	7
Burned up	1	2	3	4	5	6	7
Like yelling at someone	1	2	3	4	5	6	7
Cooperative	1	2	3	4	5	6	7
Like swearing	1	2	3	4	5	6	7
Cruel	1	2	3	4	5	6	7
Good-natured	1	2	3	4	5	6	7
Disagreeable	1	2	3	4	5	6	7
Enraged	1	2	3	4	5	6	7
Sympathetic	1	2	3	4	5	6	7
Vexed	1	2	3	4	5	6	7

Appendix G

Post-test Questionnaire Measures

Experimenter enter study condition code here: _____
Experimenter enter participant ID here: _____
Experimenter enter game score here:
Team _____ *score* _____ *vs. Team* _____ *score* _____

All sets of measures will be set to be randomly asked. The items within each measure will be randomized within the set.

Social Identification Measures (Doosje, Ellemers, & Spears, 1995; Elsbach & Bhattacharya, 2001; Hornsey & Hogg, 2000)

Please indicate the degree to which you agree with the following statement. A *group* is the pair of people who played together.

	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
I strongly identify with my group.	1	2	3	4	5
My team's successes are my successes	1	2	3	4	5
When someone praises the my team it feels like a personal compliment	1	2	3	4	5
When someone criticizes my team, it feels like a personal insult	1	2	3	4	5
The competing team's successes are my successes	1	2	3	4	5
When someone praises the competing team it feels like a personal compliment	1	2	3	4	5
When someone criticizes the competing team, it feels like a personal insult	1	2	3	4	5

Ingroup Affiliation - Ingroup Identification (Carr, Vitak, & McLaughlin, 2013; Wang, 2007, November)

Please indicate the degree to which you agree with the following statements about your team partner with whom you just played.

	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
I can see myself as a member of this person's group.*	1	2	3	4	5
I felt involved in this person's group.*	1	2	3	4	5
This person's group was important to me.	1	2	3	4	5
I would be pleased to be a member of this person's group.*	1	2	3	4	5
I feel loyal toward this person's group.*	1	2	3	4	5
I would want to become a member of this person's group.*	1	2	3	4	5
It makes a difference to me how this person's group turned out.*	1	2	3	4	5

Outgroup Affiliation (Doosje et al., 1995)

Please indicate the degree to which you agree with the following statements about the group with whom you competed with during the game you just played.

	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
I identify with that group.	1	2	3	4	5
I see myself as a member of that group.	1	2	3	4	5
I would be glad to be a member of that group.	1	2	3	4	5
I feel strong ties with that group.	1	2	3	4	5

Aggression - State Hostility Scale (Anderson, Deuser, & DeNeve, 1995; Anderson & Morrow, 1995)

Please indicate the degree to which the following adjectives describes how you feel RIGHT NOW.

I currently feel . . .	1 = Does not describe how I feel at all						7 = Accurately describes how I feel
Furious	1	2	3	4	5	6	7
Willful	1	2	3	4	5	6	7
Aggravated	1	2	3	4	5	6	7
Tender	1	2	3	4	5	6	7
Stormy	1	2	3	4	5	6	7
Polite	1	2	3	4	5	6	7
Discontented	1	2	3	4	5	6	7
Like banging on a table	1	2	3	4	5	6	7
Irritated	1	2	3	4	5	6	7
Kindly	1	2	3	4	5	6	7
Unsociable	1	2	3	4	5	6	7
Outraged	1	2	3	4	5	6	7
Agreeable	1	2	3	4	5	6	7
Angry	1	2	3	4	5	6	7
Offended	1	2	3	4	5	6	7
Disgusted	1	2	3	4	5	6	7
Tame	1	2	3	4	5	6	7
Like I’m about to explode	1	2	3	4	5	6	7
Friendly	1	2	3	4	5	6	7
Understanding	1	2	3	4	5	6	7
Amiable	1	2	3	4	5	6	7
Mad	1	2	3	4	5	6	7
Mean	1	2	3	4	5	6	7
Bitter	1	2	3	4	5	6	7
Burned up	1	2	3	4	5	6	7

Like yelling at someone	1	2	3	4	5	6	7
Cooperative	1	2	3	4	5	6	7
Like swearing	1	2	3	4	5	6	7
Cruel	1	2	3	4	5	6	7
Good-natured	1	2	3	4	5	6	7
Disagreeable	1	2	3	4	5	6	7
Enraged	1	2	3	4	5	6	7
Sympathetic	1	2	3	4	5	6	7
Vexed	1	2	3	4	5	6	7

Demographic Information

In what year were you born? (e.g. 1996) _____
What year are you at Michigan State University?

a. Freshman
b. Sophomore
c. Junior
d. Senior

Do you think of yourself as Latino or Hispanic or Mexican American or of Spanish origin?

a. Yes
b. No

How would you describe yourself (please mark all that apply)?

a. White
b. Black or African American
c. Asian
d. Native Hawaiian or Pacific Islander
e. American Indian or Native Alaskan
f. Other _____

Appendix H

Summary of the Hypotheses and Results of the Analysis

Table 8

Summary of the Hypotheses and Results of the Analysis

Hypothesis	Supported	Not Supported
H1a: Compared to those in pure competition, those in team competition will display: less aggression.		✔
H1b: more cooperative behaviors with outgroup members		✔
H1c: more trust with outgroup members		✔
H2a: Compared to those in the high disidentification condition, those in the low condition will report lower state hostility.		✔
H2b: greater outgroup affiliation		✔
H2c: greater ingroup affiliation		✔
H2d: less cooperation with ingroup members		✔
H2e: less trust of ingroup members		✔
H2f: greater cooperation with outgroup members		✔
H2g: greater trust with outgroup members		✔
H3a: Compared to those on losing teams, those who play on winning teams in the team competition conditions will report: less state hostility.		✔
H3b: greater ingroup affiliation.		✔
H3c: less outgroup affiliation		✔
H3d: greater cooperation with ingroup members.		✔
H3e: greater trust of ingroup members		✔
H3f: greater cooperation with outgroup members		✔
H3g: greater trust of outgroup members.		✔

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