Emotional Manipulation and Cognitive Distraction as Strategy: The Effects of Verbal Insults on Motivation and Performance in a Competitive Setting

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Emotional Manipulation and Cognitive Distraction as Strategy: The Effects of Verbal Insults on Motivation and Performance in a Competitive Setting

Karen C. P. McDermott, PhD
University of Connecticut, 2019

This study explored the effects of verbally aggressive insults on an opponent’s performance in a competitive setting, i.e. ‘trash talk.’ Bringing together literature from a number of fields, a model was tested which hypothesized that the perception of verbal insults would increase cognitive distraction, elevate levels of emotional arousal, and affect motivation to perform, such that competitive performance would decrease. Anger and shame were posited as the primary manifestations of emotional arousal. The study was operationalized through a video game racing competition as a true experiment with control and verbal insult conditions. Both groups received an auditory treatment delivered by confederates working with the study, but it was hypothesized that perceptions of verbally aggressive insults in the experimental group would drive the effects predicted above. The results indicated that dimensions of distraction did not directly affect game performance but instead mediated the relationship between perceived insults and participants’ motivation to perform. By contrast, shame and anger both had direct effects on game performance but had either non-significant or un-hypothesized relationships to motivation to perform. Moreover, it was assumed that anger would be the dominant emotion felt as a result of perceived verbal insults, but shame produced stronger effects and partially mediated the experience of anger. Post hoc analyses were conducted to help explain some unexpected results and provide direction for future study. These analyses of supplemental variables suggested that a general lack of arousal related to the nature of the experiment might explain the non-significant results of some hypothesized paths.
Emotional Manipulation and Cognitive Distraction as Strategy: The Effects of Verbal Insults on Motivation and Performance in a Competitive Setting

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Emotional Manipulation and Cognitive Distraction as Strategy: The Effects of Verbal Insults on Motivation and Performance in a Competitive Setting

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Chapter 1: Introduction

Competition can be found in nearly every realm of human activity, from mundane games of tic-tac-toe, to efforts to beat out a coworker for a promotion, to grand-scale wars between countries (Garcia, Tor, & Schiff, 2013; Kildea, 1983). It seems almost axiomatic that where there is competition, there is “trash talk,” yet people often have a love-hate relationship with trash talk and those who use it. The post-game media rant by Seattle Seahawk Richard Sherman directed at the 49ers Michael Crabtree in a 2013 playoff game before the Super Bowl garnered Sherman both scorn and fame. Likewise, Donald Trump’s tough talk and uninhibited insults in the 2016 election campaign helped earn him strong rebukes, but also the presidency. Trash talk is present in many areas of social discourse, but especially in games and sports. People may openly disdain it at times, but they are also inexplicably inclined to both use it and pay attention to it.

Merriam-Webster defined trash talk as “insulting comments that are made especially to an opponent in a contest, game, etc” or “disparaging, taunting, or boastful comments especially between opponents trying to intimidate each other” (Trash Talk, n.d.). Some definitions present trash talk in this dual capacity as incorporating both insults and bragging, although a number of studies focus on the verbal insult component as the primary identifying marker (Eveslage & Delaney, 1998; Kassing & Sanderson, 2010; LoConto & Roth, 2005). Eveslage and Delaney (1998), for instance, generalized the phenomenon as “insult talk” in their study of a high school basketball team (p. 240). Most competitive contests, even principally physical ones, contain a mental component, and trash talk is ultimately an attempt by an opponent to disrupt this mental element to hinder a competitor’s performance.

Despite its pervasiveness, little scientific inquiry has examined the underlying principles of why trash talk is used and how it affects its intended target. Until very recently, no research
had attempted to explore the direct effects of trash talk on competitors (see Yip, Scheitzer, & Nurmohamed, 2018 for recent studies), and no research has been found to date that attempts to statistically model the mental and emotional processes that explain the effects of trash talk on competitive performance. This study attempted to address this gap by bringing together ideas from across various fields of study in order to hypothesize a functional model mapping the processes that govern the experience of trash talk on a target and the effects of that experience on the target’s competitive performance.

**Chapter 2: Literature Review**

**Prior Study of Trash Talk**

Scholarship on trash talk has seen a recent surge, especially from academics in the field of business and economics, but in general it remains a largely understudied topic, especially given its ubiquity as a cultural phenomenon. Moreover, the relatively few extant studies on trash talk span multiple – often overlapping – fields, including Sport Studies (Chadiha, 2014; Dixon, 2007, 2008; Kniffin & Palacio, 2018; Rainey, 2012; Rainey & Granito, 2010), Sociology (Eveslage & Delaney, 1998; LoConto & Roth, 2006), Psychology (Rainey & Granito, 2010; Silverman, 1999), Communication (Kassing & Sanderson, 2010; Piantek, Christensen, & Hamilton, 2014; Tamborini, Chory, Lachlan, Westerman, & Skalski, 2008), and Business (Kniffin & Palacio, 2018; Yip, Scheitzer, & Nurmohamed, 2018). Communication research in particular has identified verbal aggressiveness as a primary component of trash talk, and acknowledged the entertainment value of trash talk in the media and among fans (Piantek et al., 2014). For example, some audiences judged users of trash talk harshly on a social level but were nevertheless drawn to the entertainment value of the spectacle and reported a desire to follow athletes who used it (Piantek et al., 2014). Competitive trash talk has in fact found an
entertainment niche. Rooted in the practice of “playing the dozens” in African American cultural contexts (Jordan, 1983), television shows like Drop the Mic that feature ‘rap battles,’ in which competitors try to out-insult each other, have enjoyed some degree of commercial success (see Petski, 2018).

The specific purposes of trash talk vary, but its most basic goal is to manipulate or influence the performance of others within the context of the sport or game setting (Eveslage & Delaney, 1998; Measer, 2014; Rainey & Granito, 2010). Intimidation is a principal purpose of trash talk (Kassing & Sanderson, 2010; LoConto & Roth, 2005), and it has been described as an “emotional manipulation” (Measer, 2014, n.p.). Trash talk is most often directed against an opponent, but it may also be used among teammates and coaches to increase competitive motivation (Eveslage & Delaney, 1998; LoConto & Roth, 2005). In some contexts, trash talk is accepted as part of competition and is sometimes even expected (LoConto & Roth, 2005).

A series of six studies on trash talk in a business setting found several relevant outcomes (Yip, Schweitzer, & Nurmohamed, 2017). In a number of the studies, recipients of trash talk were particularly motivated to outperform their opponents and in fact did often outperform them. While trash talk increased effort in competitive contexts, though, it decreased effort in cooperative ones. Finally, being the recipient of trash talk increased the tendency to cheat and decreased performance on creative tasks.

**Trash Talk as Verbal Insults**

Trash talk is largely considered to be a sport-related term, but the broader target concept in social science literature spans multiple contexts and can be described as “verbal insults” (e.g. Bond, Wan, Leung, & Giacalone, 1985; Orbach, 1978), “verbal abuse” (e.g. Semin & Rubini, 1990), or – more recently, but less normally – as “competitive incivility” (see Yip et al., 2017).
Contextual uses for “verbal abuse” in extant literature are related most often to child or adolescent bullying, domestic cruelty, or workplace maltreatment (e.g. Sachs-Ericsson, Verona, Joiner, & Preacher, 2006; Sofield & Salmond, 2003; Thurlow, 2001). The contextual uses for “verbal insults” have been applied to school, home, and workplace treatment as well, but the term often carries different connotations and assumptions. For instance, a number of studies examine verbal insults as one-time interactions that provoke social and emotional responses (e.g. Bond et al., 1985; Harris, 1993; Kochman, 1983). The concept of verbal abuse, on the other hand, implies long-term and sustained use of verbal insults with an intent to wound.

Given the negative associations of trash talk, it is not surprising that a number of texts on trash talk approach the topic as a moral issue (Staffo, 1996; Dixon, 2007, 2008; Rainey, 2012). Bond et al. (1985) invoked a study by Tedeschi, Gaes, & Rivera (1977) to assert that certain “‘aggressive’ behaviors could be conceptualized as coercive attempts to exercise social control” (p. 111). This is as true in sport settings as it is in instances of bullying and domestic or workplace abuse. Verbal insults in the context of a competition are in fact coercive attempts to gain competitive advantages. The difference is that competitive situations anticipate or even promote conflict, so instances of verbal aggressions like trash talk are often tolerated in a way that they are not in other contexts.

Given that the purpose of trash talk is more closely aligned with typical uses of verbal insults versus verbal abuse – i.e. its use is largely short-term with an intent to disrupt – this study defined trash talk as verbal insults used in a competitive context to disrupt the performance of other competitors through emotional manipulation and/or cognitive distraction. Likewise, the operational definition of verbal insults that this study used is aggressive language involving
disparaging remarks and taunts that is used to manipulate or influence outcomes by attempting to gain power or exert control in a social context.

While verbal insults can be used in many communication contexts with many potential goals, the use of verbal insults in competitive contexts was of most interest here. The advantage of differentiating the term verbal insults from trash talk is that the concept can be more broadly applied to a range of the competitive situations. Trash talk is most often associated with sports or games, but the use of verbal insults as a manipulation to exert social control is readily apparent in contexts such as politics (i.e. mudslinging) and product marketing (e.g. attack ads). In all three of these contexts – sports/games, politics, and marketing – influence is not just exerted over the target of the verbal insults, but over an audience observing them as well. Indeed, the presence of this audience plays a role in how competitors experience verbal insults.

If verbal insults are used in competitive situations to manipulate or influence outcomes through the exertion of power or social control, the main question is how exactly they do this. This study thus examined an array of literature from multiple disciplines to piece together the underlying theoretical constructs behind how verbal insults affected an individual’s performance in a competitive setting. The model that is presented maps proposed relationships between cognitive distraction, anger arousal, shame, motivation to perform, and competitive performance (see Appendix A, Figure 1). The study used video game competition as the vehicle for examining these relationships. In short, this study sought to test the constructs and relationships that govern the use of verbal insults in competition and their effects on intended targets.

**Cognitive Distraction**

In addition to the physical components of games and sport, there is usually a cognitive component to successful competitive performance, as many an athlete has been told, “Get your
head in the game!” by a coach. Verbal insults can be both an auditory and a cognitive distraction when utilized in a competitive situation. Effective cognitive performance requires the ability to maintain attention by filtering out stimuli unrelated to task implementation (Parmentier, 2008; Parmentier, Elford, Escara, Andrés, & San Miguel, 2008). This may be easier said than done, as humans are biologically hardwired to respond to auditory disruptions as a protection mechanism (Parmentier, 2008; Parmentier et al., 2008). The presence of unexpected sound, then, can affect competitive performance. More importantly, the informational value of novelty sound can moderate effects on performance (Parmentier, Elsley, & Ljungberg, 2010).

Verbal insults are meant to be disruptive rather than facilitative, so their informational components are negatively valenced. Eveslage and Delaney (1998) identified several broader categories of verbal insults in a sport setting, such as diminishment of an opponent’s skills; misogyny; overt aggression; claims to turf; and mildly humorous putdowns. By engaging in such communication, a competitor tries to focus an opponent’s attention on the content of what is said, rather than on performance-related tasks. The anticipated outcome is that the opponent will dwell on these thoughts rather than on his or her own performance. According to Wachtel (1967), “Withdrawal of attention from offending thoughts, memories, or other ‘drive derivatives’ is a basic feature of the psychoanalytic concept of defense” (p. 419). By using verbal insults during a competition, a competitor engages in a mental offense, forcing an opponent to play mental defense.

One of the most commonly used methods for inducing psychological stress in participants during stress experiments is the manipulation of failure or the threat of failure, and such manipulations are often operationalized through cognitive distraction (Lazarus, Deese, & Osler, 1952). In the same way, a competitor might use verbal insults to cause failure or instill the
threat of failure in an opponent, causing cognitive distraction and psychological stress. To this end, the study posited the following hypotheses:

H1: Perceived verbal insults from an opponent will increase cognitive distraction.

H2: Cognitive distraction will decrease competitive performance in a competition where concentration is required.

**Motivation to Perform**

Some researchers maintain that motivation, excitement, and arousal can be used interchangeably (Oxendine, 1970), but arousal has also been used to define motivation (Murray, 1964). Buck (1985) described motivation as the “potential inherent in the structure of [primary motivational/emotional systems] primes” and analogized it to potential energy in physics (p. 396). As with physical energy, motivational energy must be properly directed in order to be useful. Woodworth and Schlosberg (1954) explained:

> It is recognized in everyday life that a person’s performance on a given occasion does not always measure up to his ability. He does not run as fast or shoot as accurately or speak as convincingly as he does on other occasions. He is perhaps not highly motivated, or he may be over-motivated and so eager to succeed as to lose control of his resources of energy and skill. Both ability and motivation are factors in performance, and if either of them is entirely lacking, the performance does not occur. (p. 794)

In other words, there is a motivational sweet spot in performance. Too little motivation and the performer does not achieve full potential; too much motivation and the energy cannot be contained enough to be directed accurately.

Behavior is determined by motivational direction and intensity, within which arousal and other intensity-related terms – such as drive, tension, and activation – are descriptors for the degree of energy release toward motivation (Hull, 1952; Murray, 1964; Landers, 1980). Motivational theories such as Drive Theory (Hull, 1952; Spence & Spence, 1966),
Reinforcement Theory (Skinner, 1953), and Goal Setting Theory (Locke & Latham, 1990; 2002; 2006) all attempt to explain how various factors affect task performance based on the level and direction of arousal.

One such factor is the expectancy of goal attainment. Atkinson and Reitman (1958) defined the motivation to perform a task as the summed strength of the motives stimulated by the expectancy of goal attainment related to a specific situation. Atkinson’s (1958) findings in particular demonstrated the power of expectancy in task performance. In one study, participants who were offered a monetary reward for task achievement performed best when their odds of receiving the money were about even, while participants in groups where the odds were too long or too short performed more poorly by comparison – the results of which form an inverse-U curve when graphed (Atkinson, 1958). The assumption here is that those who felt the goal of receiving money was unattainable did not waste their energy trying too hard, while those who felt that they had a better-than-average chance of attaining the goal also did not try as hard. Two possible reasons for the latter are that participants either felt secure in their odds of receiving a reward with minimal effort, or the idea of a reward too easily attained made the reward less enticing.

While the idea that a reward too easily won is less enticing may seem dubious, Atkinson’s (1958) study involved a competition, and factors like the number of competitors or the similarity of competitors can have psychological effects on performance in a competition (Garcia, Tor, & Schiff, 2013). Consider that sport competitions in which a team or athlete wins too easily over another competitor are not as exciting, i.e. arousing, as a competition in which the players are more evenly matched. In the latter case, players are aware that even the smallest bit of extra effort may be the factor than pushes them past their opponent for the win, so there is
more motivation to expend that energy. The role of verbal insults in the expectancy of goal attainment does not appear to have been studied up to this point, but it is suggested here that in some cases verbal insults function on a cognitive level as a disruption to goal attainment expectancy. Verbal insults serve to manipulate the threat of failure, and this is largely done by shifting expectancies. The following is thus hypothesized:

H3: Cognitive distraction will decrease motivation to perform.

Motivational variables in general are outlined by three criteria (Bartoshuk, 1971). The first criteria is that a motivational variable should catalyze or enable behavioral responses. The second two criteria describe the reinforcement of responses by the stimulus offset and the punishment of responses by the stimulus onset. That is, a subject may escape an unpleasant stimulus, and thus the motivational response to escape is reinforced by the cessation of the unpleasant stimulus. Likewise, a subject may curtail certain behaviors when exposed to a punishing motivational stimulus immediately following that behavior. Both of these latter criteria, however, assume that the motivational variable is negative, as supported by examples of electric shock and food deprivation (Bartoshuk, 1971).

Motivational variables can also be positive by providing incentive (Bindra, 1968; Bolles, 1972; Mogenson & Phillips, 1976). For example, a competitor may be more motivated to score points if he or she receives applause from an audience or positive reinforcements from teammates or coaches. A competitor may likewise be motivated to endure pain if the reward is that it will advance themself or the team, such as when a baseball player allows themself to be hit by a pitch in order to get on base. Competition itself is sometimes an inherent source of motivation (see Amsel & Penick, 1962; Marx, 1956). Verbal insults thus fit the condition of a
factor that catalyzes or enables behavioral responses. Whether the catalyzed response improves or diminishes competitive performance depends on other factors, such as intensity.

**Arousal and Motor Performance**

It is widely accepted that people perform best when motivated (Oxendine, 1970). However, emotional and physical arousal can sometimes diminish certain kinds of performance by disrupting the function of motor skills. Emotional arousal has been described on a high-to-low continuum (Oxendine, 1970), while others have attributed “unpleasant emotional reactions” to particular levels of arousal (Landers, 1980, p. 77). There is an overlap in physical and psychological conditions. Heart rate, blood pressure, muscle tension, respiration, and skin responses may be affected by fluctuations in emotional arousal, and vary from person to personal based individual characteristics (Oxendine, 1970).

Several models explain the relationship between arousal and performance. Drive theory as revised by Spence and Spence (1966), suggested that increases in arousal affect performance differently based on task skill. During stages of skill acquisition, high arousal as a dominant response will decrease performance, while it will enhance performance when skill levels have reached stages of proficiency. One study found evidence that experience with a particular task mediated the effects of anxious arousal, and that the effects for others also decreased over time as subjects adjusted to the prolonged experience of arousal (Carron, 1965).

The inverted-U curve once again describes this phenomenon, but in this case it applies to physical performance. As arousal increases, performance efficiency increases until an optimal state is reached, at which point performance starts to decrease as arousal continues to increase (Hebb, 1955). In other words, there is a quadratic relationship between performance and arousal. This relationship is most applicable to tasks that require some degree of control or concentration.
The Yerkes-Dodson Law (1908), for instance, stated that the optimal arousal for completing a task depends on the nature of the task; low arousal is more conducive to complex tasks, while high arousal is more conducive to simple tasks. Oxendine (1970) further posited that high levels of arousal are more conducive to activities that involve strength, endurance, and speed, while high levels of arousal are not conducive to activities that involve complex skills, fine muscle movements, coordination, and steadiness, and general concentration. Numerous studies supported this relationship by finding that subjects with elevated levels of motivation performed better on physical tasks that did not involve fine motor skills (see Gerdes, 1958; Henry, 1961; Johnson, 1965; Miller, 1960; Strong, 1963). Likewise, arousal had deleterious effects on physical tasks that required more concentration or nuanced movements (Basomity, Karchin, & Otken, 1955; Bergstrom, 1967; Carron, 1965; Eysenck & Gillen, 1964; Pinneo, 1961).

These concepts have similarly been applied to arousal in attention, enjoyment, and most relevantly video game performance (see Boyle & Connolly, 2008; Green, Li, & Bavelier, 2010; Patsis, Sahli, Verhelst, & DeTroyer, 2013). Boyle and Connolly (2008) explored several theories to explain the enjoyment of computer games, including the Yerkes-Dodson law (1908), as well as flow theory (Csíkszentmihályi, 1990) and self-determination theory (SDT) (Deci & Ryan, 1985, 2000). SDT is particularly relevant to questions concerning trash talk, as it may explain why verbal insults are so disruptive to the competitive process.

SDT argued for three basic psychological needs – competence, autonomy, and relatedness – and the practice of trash talk attacks the very first of these needs by causing a competitor to call into question their competence in a given competitive task. Like drive theory, flow theory introduced skill level as a mediator to both performance and enjoyment, whereby flow is achieved when there is an ideal balance between player skill level and the challenges of
the game (Boyle & Connolly, 2008; Csíkszentmihályi, 1990). Trash talk attempts to tip that balance by lessening a player’s skill level through disruption or creating a challenge beyond what the player is capable of handling, either of which can lead to frustration and anger.

The use of verbal insults as a manipulative tactic is contingent upon competitive performance involving the need for concentration, fine motor skills, or some other ability that can be disrupted by excessive arousal. Verbal insults may not be as effective in an activity such as a sprinting race where the objective is mainly to run as fast as one can, as the arousal caused by the use of verbal insults could potentially enhance the performance of an opponent rather than hinder it. Competitive activities that require no concentration or no finer motor skills are relatively rare, though. While sports like baseball or basketball require physical speed and strength, the nuances of performance tasks such as shooting a basket or hitting a fast-moving pitch also require a significant amount of concentration and fine motor skills. In the present study, the physical element of the competition was limited by the use of video games as the context of operationalization. In this way, the study aimed to ensure that the arousal sweet spot was small and that any arousal generated quickly surpassed the threshold of usefulness.

**Pleasure-Arousal-Dominance (PAD) Model**

The experience of emotion in competition can have positive or negative effects, but what particular emotions a person will feel, or whether they will feel those emotions strongly enough to make the arousal excessive depends on a number of factors, including a person’s individual characteristics. A Stimulus-Organism-Response (SOR) paradigm used by environmental psychologists, or more particularly the Pleasure-Arousal-Dominance (PAD) Model (Mehrabian, 1978; Mehrabian & Russell, 1974), presents a compelling explanation for how the experience of
emotions may drive approach and avoidance behaviors in individuals in trash talk competition situations.

To start, the SOR model posited that a stimulus interacting with a number of interceding variables will lead to a specific array of responses. Mehrabian and Russell (1974) suggested that individual responses to an environment would stimulate either approach or avoidance behaviors. For instance, the trigger of approach behaviors in a particular environment may cause an individual to want to stay in that physical environment, to explore that environment, and to communicate with others in that environment. Approach behaviors also augment both the performance of and satisfaction with task operations in that environment. By contrast, avoidance behavior may prompt an individual to want to leave a physical environment, and to avoid interacting with that environment and anyone in it. Moreover, it will also impede the performance of and satisfaction with task operations in that environment.

The PAD Model posited that the emotional states of pleasure, arousal and dominance mediate approach-avoidance behaviors in different environments (Mehrabian & Russell, 1974). A later revision of the PAD Model argued for the omission of dominance as a relevant dimension, given that it requires a person to make a cognitive analysis of the situation, so the dimension is not fully affective (Russell & Pratt, 1980). Buck (2010) noted, however, that situations of dominance and submission are conducive to provoking social emotions such as pride, shame, and jealousy. Developmental-interactionist theory suggested that emotional affect cannot be fully removed from its physiological and neurological corollaries (Buck, 1985); therefore, motivation, emotion, and cognition cannot be conceptualized without involving each other (Buck, 1999). The contention that dominance should not be considered alongside pleasure and arousal as an affective emotion on the basis of cognitive requirements was thus rejected.
Instead, this study attempted to more directly recognize and measure the social emotions that characterized this state of being, as will be outlined shortly.

The PAD model has been applied to a number of recreational contexts as a way to determine satisfaction with the experience (e.g. Floyd, 1997; Holbrook, Chestnut, Oliva, & Greenleaf, 1984), including video game play (Mehrabian & Wixen, 1986). It has also been used less often to analyze performance, but in such cases it was found that arousal specifically aided in performance (Bradley, Greenwald, Petry, & Lang, 1992). This is consistent with literature in performance studies, but such literature often takes a more directed look at specific forms of arousal, thus the next step is to examine affective anger as a vehicle for arousal.

### Anger Arousal

Perceived verbal insults can affect emotional arousal. As Measer (2014) stated, the use of verbal insults in competition is meant to disrupt or manipulate emotions. Stress or state anxiety are the result of a person’s inability to adapt to high levels of arousal that cause disruptive emotional reactions (Murray, 1964). However, the effects of emotional arousal vary by individual according to many other potential factors at cognitive, behavioral, and psychological levels (Murray, 1964; Landers, 1980; Oxendine, 1970). The type of emotion felt may also be one of the factors that dictates how arousal is directed and to what degree.

Anger is an emotion that is highly applicable to competitive contexts. Lazarus (2000) describes the “theme” of anger as a response to “a demeaning offense against me and mine” (p. 234), so anger is likely to be evoked by the use of verbal insults. Anger – along with fear and disgust – comprise MacLean's (1993) amygdala circuit of the body’s limbic system and often manifest when there is conflict, competition, or fighting (Buck, 1999), i.e. anger can prompt a fight response in the fight-or-flight threat-response paradigm. Despite the negative associations
of anger as an affect, it has been related to approach behavior in the approach/avoidance motivational system (Carver & Harmon-Jones, 2009; Harmon-Jones & Allen, 1998)

Apropos to this study, some work has concluded that anger supported motivation and performance among athletes in contact sports where physical aggression enhanced success (Maxwell, 2004; Robazza & Bortloi, 2007). In these cases, anger directed at another incited the desire for revenge, so the mobilization of this anger-energy enabled performance (Lazarus, 2000, see also Yip, Schweitzer, & Nurmohamed, 2018 for related ideas). On the other hand, when excessive anger drives arousal, the body is more prone to becoming physically stressed (Buck, 1985). Anger is also subject to learned suppression since it is sometimes considered an inappropriate emotion in different social contexts or by different genders (Buck, 1985). Such suppression may increase stress as well. In short, the effects of anger can be either positive or negative (Jones & Uphill, 2004). High levels of anger can produce needed energy for more physical-oriented tasks, or excessive levels can disrupt concentration, making information processing difficult and redirecting energy needed for performance output (Jones & Uphill, 2004).

In the case of this study, task nature was the determining factor in whether anger arousal was anticipated to be helpful or harmful. The task nature – as will be detailed shortly – was designed to value concentration and fine motor skills over more physical outputs like speed and strength. It was thus hypothesized that:

H4: Perceived verbal insults from an opponent will increase anger arousal.

H5: Increases in anger arousal will increase motivation to perform.

H6: Increases in anger arousal will decrease competitive performance in a competition where concentration is required.
Shame

Shame is described as “failing to live up to an ego-ideal” (Lazarus, 2000, p. 234), and it too can effect competitive performance. In situations of dominance and submission specifically, social and moral emotions such as pride/arrogance, pity/scorn, guilt/shame, and envy/jealousy can evoke feelings of triumph, humiliation, resentment, sympathy, or indignation (Buck, 2010). Competition is by nature a context of dominance and submission, so social emotions like shame can emerge.

In social situations, displays of dominance and submission are often masked behind “rituals of politeness” (Buck, 2010, p. 287). In competitive contexts, these rituals are called good sportsmanship. Many believe that verbal insults – manifested as trash talk – do not belong in sport and game since they violate these rituals of politeness – i.e. sportsmanship (Staffo, 1996; Dixon, 2007, 2008; Rainey, 2012). However, such rituals can be difficult to maintain under increased emotional arousal or the physical aggression inherent in many competitive activities.

More than just a social context, games and sport are spectacle, and as such they often involve an audience. The potential for being watched and judged by one’s performance success can provoke feelings of shame or embarrassment at the prospect of failure. Little if any extant research seems to address whether feelings of shame during competition will increase or decrease performance, but in contrast to anger, which provokes approach responses, this study anticipated an avoidance or withdrawal, i.e. ‘flight’ response to the experience of shame. Shame was expected to decrease arousal and cause a competitor to lose motivation and perform poorly. Specifically, this study posited the following:

**H7:** Perceived verbal insults from an opponent in a dominance/submission context will increase feelings of shame.
H8: Increases in feelings of shame will decrease motivation to perform.
H9: Decreases in motivation to perform will decrease competitive performance.
H10: Increases in feelings of shame will decrease competitive performance.

The ten hypotheses above are represented in the model shown in Figure 1.

**Personal Factors**

As the discussion above suggests, there are numerous task-related factors that might moderate the relationship between arousal and performance, such as task nature (Yerkes & Dodson, 1908), task skill (Spence & Spence, 1966), or the balance between task skill and game challenge (Csíkszentmihályi, 1990), but there are also innumerable personal factors to consider as well. Such personal factors are likely to affect how an individual may react to a stimulus like verbal aggressions during competition. An analysis of the literature has suggested that participants may be susceptible to feelings of anger or shame when subjected to trash talk, but there is little in the way of research to explain what might make one competitor feel shame over anger, or vice versa. Two possibilities are personal competiveness and self-confidence.

The use of trash talk to manipulate contest outcomes is itself driven by the competitive desire to gain an advantage, so it is reasonable to consider that opponent reactions to trash talk may also be affected by personal competitiveness. In a discussion of the nature of sport, Loy (1968) defined competition as the “struggle for supremacy between two or more opposing sides” (p. 5), while Houston, Farese, and La Du (1992) defined competitiveness as “the desire to win in interpersonal situations” (p. 1153). The former specifically leaves room for the struggles between humans and other forces or inanimate objects. Indeed, other researchers differentiate the term more specifically into modes of competition, such as survival, mastery, and transcendence in order to recognize that competition can occur between humans and nature, or within humans as
they struggle with internal conflicts or try to beat personal past performances, etc (Kildea, 1983).

Very often, however, people conceive of competition as a contest, either real or imagined, between two or more individuals or teams fighting for dominance, and the latter definition of competitiveness (Houston et al., 1992) hones in on this interpersonal element. Competition in general often functions as a means of social comparison (Festinger, 1954; Garcia et al., 2013). Even in this regard, competitiveness may depend on additional factors like the relevance of the task to the competitor, the competitor’s degree of similarity to their opponent, and the relational closeness of the competitor to their opponent (Garcia et al., 2013).

Despite this multiplicity of influences that affect competitiveness in a given situation, investigation into the idea of competitiveness nevertheless suggests that researchers view the concept as more broadly measurable. In other words, independent of task, potential reward, or opponent, some people are simply more competitive than others, i.e. competitiveness is a personality trait. Engagement in competition is by nature an approach behavior, so logic would suggest that anger might be the emotion most affected degrees of personal competitiveness in competition. Extant literature does not currently provide enough direct evidence to posit a direction hypothesis on this, however, so to this end, the study asked the following research question:

RQ1: Will dimensions of personal competitiveness positively predict feelings of anger?

Researchers in the field of sport psychology acknowledged both that competition can cause cognitive anxiety and that self-confidence is a factor in the degree to which an individual may experience such anxiety (Martens, Burton, Vealey, Bump, & Smith, 1990). The Competitive State Anxiety Inventory-2 (CSAI-2) (Martens et al., 1990), for example, measures cognitive anxiety, somatic anxiety, and self-confidence related to competition. Shrauger and Schohn
(1995) defined self-confidence as “people’s sense of their competence and skill, their perceived capability to deal effectively with various situations” (p. 256). Unlike the similar concepts of self-worth or self-esteem, which are often related to the perceptions of others, self-confidence is determined by one’s own personal assessment of one’s abilities (Franks & Marolla, 1976; Shrauger & Schohn, 1995). Much like competitiveness, self-confidence can also be situation-specific or more broadly applicable to an individual’s overall personality (Shrauger & Schohn, 1995). That is, across the board, some people just appear to be more globally self-confident than others, but individuals may also show more self-confidence in specific areas of strength. In particular, the Personal Evaluation Inventory (PEI) (Shrauger & Schohn, 1995) measures areas of both global and domain-specific self-confidence like mood, academic performance, physical appearance, athletics, romantic relationships, social interactions, and speaking before people.

As with competitiveness, self-confidence has not been studied in conjunction with trash talk, so there is little theoretical basis for hypothesizing about its effects in this context. However, given that shame is associated with feelings of having failed to live up to one’s own ideal ego, it is reasonable to surmise that self-confidence may be associated with an individual’s susceptibility to feel shame when subjected to verbal insults during a competition. With low-levels of self-confidence, an individual is likely to be more receptive to their opponent’s taunts that they are performing poorly, and this will in turn lead to feelings of shame.

While these arguments make logical sense when extrapolated, extant theory again does not provide clear evidence that can be used to posit directional hypotheses. Thus, in order to explore these suppositions, the study put forth the following research question:

RQ2: Will dimensions of self-confidence negatively predict feelings of shame?
Chapter 3: Methodology

To test these hypotheses and research questions, this study utilized an experimental design in which participants were recruited to play a video game, Mario Kart, in the UConn Communication Department’s Video Game Lab. The game was played on a Nintendo Switch system with full-sized controllers. Mario Kart was first introduced by Nintendo in 1992, but the Switch system, which was released in early 2017, supports a more colorful, dynamic, and 3-dimensional-looking version of the game. Mario Kart is a go-kart-style racing game in which up to 12 players can race against each other around a number of set courses. Players can secure advantages in the races to use against other competitors, and they encounter hazards to avoid. In this study, participants played competitively against one other human opponent who was a confederate in the study; the other ten karts in the race were controlled by the system, i.e. they were CPU players. Participants were randomly assigned by coin flip to either a control condition or a treatment condition.

Confederates were recruited from the Drama department at UConn and were trained to deliver the treatment and control condition scripts during game play. Four females and five males were hired and paid a stipend from research funding. Five students from the COMM 4992 Research Practicum in Communication class were recruited to work as lab technicians in addition to the student researcher. The primary responsibilities of the lab technicians were to direct participants in the study, administer data collection surveys, and record a minimal amount of observational data from each game session.

Sample and Recruitment

A study by McGloin, Farrar, & Fishlock (2015) provided a model for the level of effect size that could be expected for a video game study using a path analysis. McGloin et al. (2015)
measured similar variables such as immersion and cognitive aggression, so the studies are relatively comparable. McGloin et al. (2015) found significant Cohen’s $d$ effect sizes of between .28 and .56 for the various model paths. A power analysis was conducted using an online calculator (Soper, 2018) to determine the $N$ needed for a minimum effect size (.28) with a power of .80 and $\alpha = .05$. The calculator recommended a minimum sample size of 177 participants to detect effects. This is close to the recommended 200 participants that is supported as a standard for path analysis (e.g. Iacobucci, 2010), so the study sought to recruit between 200 and 250 participants in order to accommodate attrition or the need to remove cases for other reasons (see Results below for more information about the final sample).

Participants were recruited from the COMM 1000 Process of Communication introductory class to take part in the study. Participants were only informed that the study involved research on social responses in video game-playing situations. College students were a convenient but reasonable choice of participant pool, as they were likely to have experience playing video games, would be comfortable in competitive situations, and could easily access the Communication Department Video Game Lab. Participation in this study required students to complete a pre-test survey, a gaming session, and a post-test survey. Each component took no more than 15 minutes, for a total lab time of about 45 minutes. Participants who took part in the study through their COMM 1000 class were awarded course credit for their involvement. Students can complete up to a maximum of 100 total points for the semester for 5 hours of completed research, so participants were thus awarded 5 course points for each of the three parts for a total of 15 points in this study. An alternative assignment of approximately the same length and worth equivalent points was available to any student who does not wish to participate, and this option was exercised by several students.
Conditions and Stimulus Materials

The study utilized a video game that required concentration and fine motor skills in which two players could compete against each other, specifically Mario Kart. The game allowed for real-time competition against another player without involving any kind of direct violence or aggressiveness, such as that inherent in first-person shooter games. The game was set so that both players raced the relatively gender neutral Yoshi character and had the same cart, tires, and parachute. Players completed the four races of the Mushroom Cup circuit at the 100cc level. The level refers to the engine class, and 100cc is the second-lowest level in the game, above 50cc, but below the 150cc and 200cc levels. At this level, more CPU players get head-starts, and players can also drift, which involves building up energy on a turn that can then be used to provide the player a boost of speed on a straightaway. In general, the 100cc level allows players to exercise more skill, but the level is still manageable for beginners.

Scripts of equal length for both the experimental and control groups were developed and delivered to each participant based on a coin flip prior to each session (see Appendix B, Scripts 1 & 2). Examples of verbal insults in the experimental script included, “You are awful at this game”; “Grab a straw because you suck!”; and “Is that the best you’ve got? My three-year old cousin plays better than you do.” Non-insulting comments for the control group were also developed so that both groups received an auditory treatment and the effects of the verbal insults could be isolated. Examples from the Control script included, “I have to remember to do some laundry later”; “Ugh, I’m starving. I wonder what they’re serving in the dining hall”; and “Man, I haven’t played this game in forever.”
Experimental Procedure

Participants were directed to sign up for game-playing appointments in the lab using the Acuity online appointment scheduling system. Participants scheduled appointments in 45-minute sessions with 15 minutes in between sessions to reset the lab or account for sessions that might run late. The student investigator sent reminders to participants about their sessions the week prior to their session, and the Acuity system also sent an automated reminder the day prior to their session. Participants were instructed at sign-up to wait on a couch in a hall on the opposite side of the floor from the video game lab so as to minimize any chance that a participant leaving one session might see or interact with a participant arriving for the next session. A sign was placed on the wall during study sessions so that participants knew they were waiting in the correct area.

When it was time for each session, a lab technician came down the hall from the Video Game Lab, greeted the participant, and brought them to the game lab. The confederate was already seated in the lab on the other side of a divider in an armchair farthest from the door. As the lab technician walked the participant down to the lab, they told the participant that they would be playing against another participant who was already seated on the other side of a divider. The participant was told not to worry about the divider as it was just there so the two players could concentrate on the game and not on each other.

Lab technicians were trained to always treat confederates as if they were any other participant, and confederates were trained to always act as if they were just another participant. For lab technicians this meant speaking to both the participant and the confederate when giving directions and handing out study equipment at required times. For confederates this involved
pretending to fill out the online survey, playing the game, and interacting with the participant if absolutely necessary to keep up the ruse.

Once in the lab, the participant was directed to leave anything they did not need (i.e. coats or backpacks, etc) on a couch near the back of the room and sit down in the armchair closest to the door. The lab technician then explained the study procedure using a script and handed each person a laptop that was cued up with the pretest survey. The actual participant received their laptop first so they could start immediately. Next, the confederate received a laptop marked with red dots, on which a dummy survey was cued up. The participant and confederate were instructed to stop when they reached a page that had a stop sign on it and let the lab technician know that they were done.

Participants were given about 10 minutes to take the first part of the survey, and with rare exceptions, most participants finished within that timeframe. Lab technicians allowed participants to have up to 15 minutes before prompting them to finish. The confederate pretended to complete their survey after about 10 minutes so as to encourage the participant to complete theirs in a timely manner. If the participant finished sooner than ten minutes, the confederate waited another 30 seconds or so before turning in their laptop so as not to arouse suspicion. There were no cases in which the participant did not complete the first part of the survey in the allotted time limit.

Once the pre-test was complete, the lab technician brought each laptop to the other side of the room out-of-sight and returned to give the participant and confederate the game controllers. Both were asked if they needed any instruction on how to work the controller, and any participant who did not know how to work it was given a quick tutorial. A single-sheet user guide to the controller showing which buttons controlled which functions was also available on a
table in front of both the participant and the confederate. The participant was given the primary controller and told that they would need to hit the “A” button to get each race started. They were then told to start the game, and the lab technician retired to the back of the room where they could watch unobtrusively.

As part of the initial instructions, the lab technician asked players to try to keep track of what position they placed in each race. Participants were never instructed to report this at any time, but asking the participant to remember it was intended to reinforce the idea that this was a competition. The confederate was previously instructed to go easy on the participant for the first race of the game in order to allow participants to ‘warm up’ and for the confederate to get a baseline idea of the participant’s skill at the game. If possible, the confederate was supposed to allow the participant to win this first round so that the participant felt as though success was possible.

After the first race, participants in the control group were subjected to non-aggressive, non-insulting comments from the confederate at regular intervals, approximately every 90 seconds. Confederates were trained to deliver these comments at times that seemed natural but that were within a few seconds of the 90-second intervals. A timer was discretely placed within view of the confederate to assist with this. Because the study measured distraction, it was necessary that participants in the control group received some sort of auditory treatment so that any significant differences in the experimental group could be traced back specifically to the aggressive and insulting content of the verbal insult manipulation and not simply to the presence of noise. Likewise, participants in the experimental group were subjected to aggressive and insulting remarks directed at themselves and their game-playing ability at the same approximate
90-second regular intervals. The confederates delivered a total of eight lines during each game session in both the control and the treatment conditions. Each script was exactly 90 words long.

After getting the players started on the game, the lab technician retreated to the back of the room where they filled out the “Official Use” page of the participant’s survey and then cued up the post-survey. The “Official Use” page recorded the case number, the lab technician’s ID, the confederate’s ID, and the condition. The confederate’s laptop contained a dummy survey and was also cued up to a page that resembled the first page of the participant’s post-test survey. The lab technician also filled out the session information box at the top of the “Lab Technician Observation Sheet” and listened to what the participant was saying in order to fill out the bottom half of the form (see Appendix D, Form 1). The form included Likert-type scales to record whether the participant verbally engaged with the confederate and whether they trash talked to the confederate. There was also space for the lab technician to expand on their observations, record any unusual incidents, or note if the study had to be stopped for any reason.

When the players finished all four races of the circuit, the lab technician took the game controllers back and handed each player their original laptop in order to take the post-survey. The participant received their laptop first and the confederate received the one marked with the red dots. The participant again had up to 15 minutes to take the post-survey. The post-survey automatically redirected participants at the end to a separate site to receive their COMM 1000 credit. As soon as the participant indicated they were done, the lab technician took their laptop and delivered the debrief script. Participants were informed that their opponent was part of the study and that they should not take anything that was said to them personally. They were given an information card for health services on campus, and a business card with the student investigator’s contact information on it as well as the URL for a website that would contain more
information about the study after a certain date. Participants were asked not to discuss the study with anyone else until this date.

Study sessions lasted between 40-50 minutes, depending on how quickly participants took each part of the survey. Forty-five minutes were allotted for each session and there were 15-minute reset windows between sessions when multiple sessions ran in a row, so participants did not encounter each other coming or going. Lab staff generally did not work more than three-hour shifts to avoid fatigue, and two-hour shifts were the norm.

Measures

Competitiveness. The pre-survey first measured dimensions of participant competitiveness using a revised version (Houston, Harris, McIntire, & Francis, 2002) of the Competitiveness Index (CI) originally developed by Smither and Houston (1992) (see Appendix C, Measure 1). The original measure included 20 items that yielded three factors on emotion, argument, and games. The index was also determined to be valid as a measure for distinguishing levels of competitiveness between groups with jobs that represented different degrees of competitiveness, specifically nurses and lawyers (Houston et al., 1992). A pared-down version of the scale retained 14 items representing enjoyment of competition and contentiousness (Houston et al., 2002). This modified version also shifted the response format from a true-false structure to a Likert-type scale design. Items included prompts like, “I am a competitive individual,” and “I often remain quiet rather than risk hurting another person.”

The revised CI removed most of the original scale items related to winning, but the desire to win is presumably central to the issue of trash talk, so additional measures were sought to capture this dimension of competitiveness. To this end, the Sport Orientation Questionnaire (SOQ) (Gill & Deeter, 2013) was also used as an additional measure of competitiveness, with
minor modifications to make it applicable to video game play rather than sports (see Appendix C, Measure 2). The SOQ utilized many similarly-worded items as the CI and contained three subscales representing competitiveness, winning, and goal orientation (Gill & Deeter, 2013). Prompts included, “Winning is important,” and “I try hardest when I have a specific goal.” References to sports in the questionnaire were replaced with references to video games or gaming.

The Competiveness Index had an overall reliability of .89, with strong alphas for the subscales representing enjoyment of competition (α = .92) and contentiousness (α = .78). A CFA showed moderate correlation between enjoyment of competition and contentiousness (r = .48, p < .001). Beta weights were between .53 and .88 for enjoyment of competition and between .56 and .75 for contentiousness, $\chi^2 (76) = 213.57, p < .001$, CMIN/DF = 2.810, RMSEA = .100, CFI = .907.

The Sport Orientation Questionnaire (SOQ) had an alpha of .91 with strong reliabilities for the subscales of competitiveness (α = .89), winning (α = .87), and goal orientation (α = .86). A confirmatory factor analysis (CFA) showed a moderate correlation between competitiveness and goal orientation (r = .52, p < .001) and between competitiveness and winning (r = .57, p < .001). The correlation between goal orientation and winning was weaker, but still significant (r = .25, p = .005). Beta weights were between .68 and .75 for goal orientation and between .61 to .88 for winning, but the beta weights for competitiveness were more problematic. Three items related to gaming registered betas between .21 and .28, while the other ten items had betas between .54 to .85. The overall model fit was poor, $\chi^2 (272) = 1012.18, p < .001$, CMIN/DF = 3.721, RMSEA = .122, CFI = .727. When the three gaming items were broken off into a separate
factor, model fit improved, $\chi^2 (269) = 705.08, p < .001$, CMIN/DF = 2.621, RMSEA = .094, CFI = .839. The beta weights for the new gaming factor were from .79 to .89.

Competitiveness was significantly correlated with gaming ($r = .23, p = .009$), goal orientation ($r = .23, p < .001$), and winning ($r = .55, p < .001$). Winning was also correlated with goal orientation ($r = .25, p = .004$) and gaming ($r = .35, p < .001$), but gaming and goal orientation were not correlated at all ($r = -.01, p = .872$).

When analyzed together, the 39 items of the two scales had an overall alpha of .93. An exploratory factor analysis (EFA) was run to determine the extent to which items on the scales might be combined. The combined items yielded seven factors with Eigenvalues greater than 1. The Kaiser-Meyer-Olkin measure of sampling adequacy was .90, and Bartlett’s test of sphericity was significant, $\chi^2 (741) = 4805.75, p < .001$. Four of the factors clearly represented the previously identified winning, goals orientation, contentiousness, and gaming dimensions. Of the remaining items, about half loaded onto the enjoyment of competition factor while the other half loaded more indistinctly across two or three factors. For example, the item, “I look forward to competing,” loaded onto enjoyment of competition with .608, but also loaded onto factor 4 with a .572 and factor 7 with a .193.

A correlation matrix and several CFA models were run to see if the remaining items could be further broken into factors, but after extensive analysis, the best model was still one that represented the original subscales of the two measures plus the gaming dimension. The final model included latent variables for competitiveness ($\alpha = .91, M = 5.14, SD = .99$), enjoyment of competition ($\alpha = .92, M = 5.07, SD = .97$), contentiousness ($\alpha = .78, M = 4.05, SD = 1.05$), gaming competitiveness ($\alpha = .88, M = 2.73, SD = 1.47$), goal orientation ($\alpha = .86, M = 5.79, SD = 1.82$).
= .74), and desire to win ($\alpha = .87$, $M = 4.56$, $SD = 1.13$), $\chi^2 (687) = 1479.18$, $p < .001$, CMIN/DF = 2.153, RMSEA = .080, CFI = .827. The correlations between variables are shown in Table 1.

**Self-Confidence.** The Personal Evaluation Inventory (PEI) (Shrauger & Schohn, 1995) measures areas of both global and domain-specific self-confidence, including general confidence, mood, academic performance, physical appearance, athletics, romantic relationships, social interactions, and speaking before people. Developmental tests of the scale found that self-confidence was largely independent of changes in mood, but that general self-confidence was predictive of the combined level of confidence found when averaging the six situation-specific subscales (Shrauger & Schohn, 1995). Studies that explored the applications of the PEI also found that the levels of self-confidence people reported were relatively consistent with others’ perceptions of their confidence, and that people were inclined to choose activities that represented those areas in which they had greater self-confidence (Shrauger & Schohn, 1995).

This study tested participants’ general self-confidence as well as their self-confidence in social interactions, speaking before people, and gaming using the related subscales from the PEI in the pre-test (see Appendix C, Measure 3). The gaming subscale utilized the items from the PEI athletics subscale but, as with the SOQ, substituted the terms *gaming* or *video games* for any terms related to sports and athletics in the scale items. The social interactions subscale was chosen because the game play situation of the experiment involved some social interaction with the opponent, who delivered a verbal script. Moreover, given that competition was identified as an exercise in social comparison (see Festinger, 1954; Garcia et al., 2013), a participant’s self-confidence in this type of situation was applicable. The speaking before people subscale was also chosen because of the verbal element of the manipulation. While it was the confederate who delivered the study script, the participant’s own comfort level speaking in company was
measured to assess any likelihood that they might respond or interact back. As noted above, the lab technician recorded whether or not the study participant interacted with or trash talked back to the confederate, so this measure was anticipated to be predictive of that tendency. Moreover, a participant who was comfortable speaking in front of others, perhaps even enough to trash talk back to the confederate, was potentially less likely to experience shame.

Initial reliability for all items on the PEI was $\alpha = .91$. Reliabilities for the subscales were as follows: general confidence ($\alpha = .77$), gaming ($\alpha = .84$), social interactions ($\alpha = .90$), and speaking before people ($\alpha = .91$). The PEI was analyzed using confirmatory factor analysis to validate the dimensions of general, gaming, social, and speaking confidence, $\chi^2 (293) = 568.43, p < .001$, CMIN/DF = 1.940, RMSEA = .072, CFI = .886. The beta weights were between .47 and .64 for general confidence; between .54 and .86 for gaming confidence; between .67 and .87 for social interactions; and between .68 and .87 for speaking confidence. The removal of low-weight paths did not improve model fit, so all items were retained and combined in composite variables representing general confidence ($M = 4.08, SD = .95$), gaming confidence ($M = 3.81, SD = 1.33$), social confidence ($M = 4.74, SD = 1.13$), and speaking confidence ($M = 4.44, SD = 1.28$). There were no significant correlations between gaming and social interactions ($r = -.01, p = .938$) or gaming and speaking ($r = .11, p = .18$), but there was a weak correlation between general confidence and gaming ($r = .20, p < .05$). There were also strong correlations between general confidence and both speaking confidence ($r = .66, p < .001$) and social confidence ($r = .72, p < .001$), as well as between social and speaking confidence ($r = .70, p < .001$).

**Motivation to Perform.** A short scale to measure Motivation to Perform in this specific study was developed. The scale used a 7-point scale Likert measure to answer four items, with responses ranging from *Strongly disagree* to *Strongly agree*. The wording of the items allowed
for the scale to be used as both a pre- and post-survey measure with only slight modification. Examples of pre- and post-survey items included, “My desire to play this game is/was high”, and “I want/ed to do well at the game when I am/was playing” (see Appendix C, Measures 10 & 11).

Both the pre- and post-survey scales were tested for reliability. The reliability for the pre-test scale was $\alpha = .84$, and the reliability for the post-test scale was $\alpha = .85$. The items were combined into composite variables representing pre- and post-play motivation to perform. The pre-play motivation to perform score ($M = 4.82, SD = 1.08$) was then subtracted from the post-play motivation to perform score ($M = 5.20, SD = 1.20$) to determine a final motivation to perform ($M = .38, SD = .97$) variable that was utilized during path model analysis to answer predictions related to H4, H7, and H8.

**Expectancy and Performance.** Performance was measured subjectively using a short scale developed for this study to assess performance expectancy in the pre-survey, e.g. “I am confident that I will play this game to the best of my ability,” and then subjective performance in the post-survey, e.g. “I am confident that I played this game to the best of my ability” (see Appendix C, Measures 12 & 14). The scales again used a 7-point scale Likert measure to answer six items ranging from *Strongly disagree* to *Strongly agree*. An additional question asked participants to rate their expected and actual performance on a scale of one to seven (see Appendix C, Measures 13 & 15). Participants’ evaluation of their own performance in the game was thus assessed against their own expectations, which were presumably based on their familiarity with video games and this game in particular. Measuring participants’ performance against their own expectancy was the most direct way that the study could control for experience and skill, given that participants would be playing against confederates who were accumulating experience as the study progressed.
The reliability for the seven-item pre-test performance expectancy scale was $\alpha = .91$, and the reliability for the post-test scale of actual performance was $\alpha = .95$. The items were combined into composite variables representing pre-play performance expectancy and post-play performance assessment. The pre-play performance expectancy score ($M = 4.24$, $SD = 1.10$) was then subtracted from the post-play performance assessment score ($M = 4.54$, $SD = 1.75$) to determine a final subjective *competitive performance* variable ($M = .30$, $SD = 1.48$) that was utilized during path model analysis to answer predictions related to H2, H5, H8, and H9.

**Pleasure-Arousal-Dominance (PAD) Model.** The Pleasure-Arousal-Dominance (PAD) Emotion Model utilizes sets of semantic differential scale items (Mehrabian, 1978, 1996; Mehrabian & Russell, 1974) to measure the three aforementioned dimensions of experience. Based on the early work of Mehrabian and Russell (1974), the PAD scales were validated for use as measures of both state emotion as well as temperament (Mehrabian, 1996). The model was used in this study to help determine approach or avoidance responses based on environmental stimuli (Donovan & Rossiter, 1982).

This study used a slightly adapted version of the PAD Emotion scales to measure pleasure, arousal, and dominance (see Appendix C, Measures 4, 5, & 6). The arousal subscale was presented as originally designed, while the pleasure subscale was unchanged except for the substitution of the word “discontent” for “melancholic” as the semantic opposite of “content.” In the dominance scale, “without control” was substituted for “cared-for” opposite “in control,” and “unimportant” was substituted for “awed” opposite “important.” An additional scale item measuring a range from “unsure” to “confident” was also added. The PAD Emotion scale was implemented in both the pre-survey before the gaming session as well as in the post-survey after game play.
The full pre-test PAD scale had a reliability of $\alpha = .86$ and reliabilities of $\alpha = .88$ for the pleasure subscale, $\alpha = .79$ for the arousal subscale, and $\alpha = .81$ for the dominance subscale. The full post-test PAD scale had a reliability of $\alpha = .92$ and reliabilities of $\alpha = .94$ for the pleasure subscale, $\alpha = .85$ for the arousal subscale, and $\alpha = .93$ for the dominance subscale.

A CFA in AMOS for the pre-test results returned beta weights between .65 and .85 for pleasure, between .42 and .82 for arousal, and between .51 and .71 for dominance. There was a relatively strong correlation between pleasure and dominance ($r = .57, p < .001$), and moderate correlations between pleasure and arousal ($r = .26, p = .01$) and arousal and dominance ($r = .42, p < .001$). Overall model fit was mediocre, $\chi^2 (132) = 392.91, p < .001$, CMIN/DF = 2.977, RMSEA = .104, CFI = .812.

However, a CFA in AMOS for the post-test results returned beta weights between .80 and .94 for pleasure, between .59 and .77 for arousal, and between .74 and .88 for dominance. There was a strong correlation between pleasure and dominance ($r = .78, p < .001$), and moderate correlations between pleasure and arousal ($r = .32, p < .001$) and arousal and dominance ($r = .39, p < .001$). Overall model fit was good, $\chi^2 (132) = 313.63, p < .001$, CMIN/DF = 2.376, RMSEA = .087, CFI = .923.

The better fit for the post-test model is not surprising. Given that participants were being asked to report a baseline state-of-mind in the pre-test apropos of nothing, it was likely that participants had some difficulty pinpointing their feelings related to the prompts. Conceivably, it was easier for participants to gauge their responses to these prompts in relationship to events of the game, hence the stronger results of the post-test model. Moreover, paired sample t-tests found that there were in fact significant increases in all three variables from the pre-test to the post-test. Overall, post-game pleasure ($M = 5.33, SD = 1.35$) was significantly greater than pre-
game pleasure ($M = 5.11$, $SD = 1.06$), $t(183) = -2.02$, $p < .05$, Cohen’s $d = .18$. Post-game arousal ($M = 4.79$, $SD = 1.15$) was significantly greater than pre-game arousal ($M = 3.42$, $SD = 1.02$), $t(182) = -16.39$, $p < .001$, Cohen’s $d = 1.26$. And post-game dominance ($M = 4.84$, $SD = 1.15$) was significantly greater than pre-game dominance ($M = 4.25$, $SD = .90$), $t(181) = -7.03$, $p < .001$, Cohen’s $d = .57$.

The subscale dimensions were combined into six higher order factors representing pre- and post-pleasure, arousal, and dominance. The pre-survey pleasure ($M = 5.12$, $SD = 1.06$), arousal ($M = 3.42$, $SD = 1.02$), and dominance ($M = 4.26$, $SD = .90$) composite scores were then subtracted from the post-survey pleasure ($M = 5.33$, $SD = 1.35$), arousal ($M = 4.79$, $SD = 1.15$), and dominance ($M = 4.83$, $SD = 1.15$) composite scores to determine a score representing the change from time one to time two for each dimension. These calculated pleasure ($M = .21$, $SD = 1.43$), arousal ($M = 1.36$, $SD = 1.12$), and dominance ($M = .59$, $SD = 1.13$) variables were used in exploratory analyses to determine any additional effects of perceived verbal insults on participant experience that were not hypothesized.

**Misdirection Items.** To help mask the purpose of the purpose of the study, participants were given four ranking items to misdirect them just before game play. The items asked participants to rank their favorite types of movies, favorite types of music, what they prefer to do when on vacation, and what they prefer to do in their free time. The results of these measures were not analyzed.

**Open-End Measure of Experience.** The first question of the post-survey after participants finished game play was an open-end measure in which participants were prompted, “In a sentence or two, describe your experience.” The purpose of this question was two-fold. First, it was intended to help participants process their experience as they began the second round
of measures. The question also functioned as an additional exploratory measure and manipulation check; that is, the responses were reviewed for possible moderating factors or evidence that the manipulation was ineffective. For example, the control script focused partially on food, so it was possible that a hungry participant might end up being as distracted by that script as participants in the trash talk condition. A small number of participants also used this space to indicate that they suspected the confederate was working with the study, so these responses were integral in determining cases that needed to be removed from the data set.

**Anger and Shame.** Immediately after the open-ended measure, anger and shame were tested as the emotional effects of experiencing verbal insults during competition using extracted items from the Communication via Analytic and Syncretic Cognition Scale (CASC) (Chaudhuri & Buck, 1994). The scale was designed to find significant differences between specific feelings of emotion. In particular, Kovacic and Podgornik (2013) found that the CASC scale detected differences between motives and was an effective tool for measuring advertising effects. With a slight revision of wording, the scale asked participants to, “Please rate the FEELINGS that you experienced while playing this game. That is, complete the sentence ‘I felt ___ while playing this game.’” The scale was measured on seven points from *Not at all* to *Very Much*. Items used to identify an anger arousal construct were Anger, Hate, Annoyance, Frustration, Excitement, and Motivation (see Appendix C, Measure 8). Items used to identify a shame construct were Shame, Embarrassment, Confidence (reverse coded), and Pride (reverse coded) (see Appendix C, Measure 9).

An initial reliability check of the anger items returned $\alpha = 0.69$, and reliability for the shame items was $\alpha = 0.71$. A confirmatory factor analysis in AMOS was then used to validate these constructs. However, the first model had poor fit with very low beta weights for several
items: motivation ($\beta = .09$), excitement ($\beta = -.19$), pride ($\beta = .21$), and confidence ($\beta = .40$), $\chi^2 (34) = 407.03, p < .001$, CMIN/DF = 11.97, RMSEA = .246, CFI = .616.

Pearson correlations revealed that anger was most closely correlated with hate ($r = .68, p < .001$), annoyance ($r = .64, p < .001$), and frustration ($r = .66, p < .001$). Shame was correlated to the greatest degree with embarrassment ($r = .73, p < .001$), but not at all with pride ($r = .10, p = .18$). The original reverse coding was removed, and pride was most correlated with confidence ($r = .69, p < .001$). Finally, excitement was most correlated with motivation ($r = .69, p < .001$).

Using these associations, a new four-factor model was generated to represent dimensions of anger, shame, pride, and excitement. Beta weights ranged from .75 at the lowest to .91 across the four constructs, with a best possible fit of $\chi^2 (29) = 90.56, p < .001$, CMIN/DF = 3.12, RMSEA = .108, CFI = .937. There was no significant correlation between excitement and anger ($r = .00, p = .98$), or between shame and excitement ($r = -.04, p = .67$), but there was a strong correlation between anger and shame ($r = .74, p < .001$). There was also a weak negative correlation between pride and shame ($r = -.36, p < .001$) and pride and anger ($r = -.21, p = .02$). Pride was strongly correlated with excitement as well ($r = .77, p < .001$). These items were combined into composite variables representing anger ($M = 2.55, SD = 1.43$), shame ($M = 1.87, SD = 1.25$), pride ($M = 4.20, SD = 1.73$), and excitement ($M = 4.87, SD = 1.61$).

A CFA was conducted using the excitement and motivation CASC variables alongside the four post-test motivation items. The first test of a one-factor solution indicated that these two emotion items were strongly associated with the post-test motivation variable; the excitement item ($\beta = .72$) and the motivation item ($\beta = .65$) in fact had stronger path weights in the model than one of the original items related to doing well in the game ($\beta = .54$). Path weights for the other items were , .88, .88, and .75, $\chi^2 (9) = 122.97, p < .001$, CMIN/DF = 13.663, RMSEA =
However, a second test of the variables with a two-factor solution showed an increase in path weights for both excitement ($\beta = .89$) and motivation item ($\beta = .78$). The path weights increased for two of the motivation items (.91 & .91) but decreased for the two others (.72 & .51), and the two latent variables had a strong correlation, $r = .76, p < .001$. Overall, the model fit did improve, suggesting that the two-factor solution was a better if not ideal fit, $\chi^2 (8) = 79.98, p < .001$, CMIN/DF = 9.997, RMSEA = .222, CFI = .890. *Excitement* was left as a separate variable.

The pride and confidence emotion items were also factor analyzed in a CFA against the items from the gaming confidence and general confidence subscales of the PEI. In the first model, pride and confidence were analyzed as elements of gaming confidence. Path weights for those seven items ranged from .49 to .86, with weight of .49 for pride and .57 for confidence. Path weights for the general confidence construct ranged from .45 to .66, and the two variables were weakly correlated ($r = .20, p < .03$), $\chi^2 (76) = 219.29, p < .001$, CMIN/DF = 2.89, RMSEA = .129, CFI = .825.

A CFA associating pride and confidence with the general confidence construct was far less successful; pride had a path weight of .10 while confidence had a path weight of .19. The model fit worsened as well, $\chi^2 (76) = 305.69, p < .001$, CMIN/DF = 4.02, RMSEA = .102, CFI = .720.

The best fit came from a three-factor solution. Pride had a path weight of .76 and confidence had a path weight of .91 when connected to an independent construct representing *pride*. This pride variable had a relatively strong correlation with gaming confidence ($r = .57, p < .001$) but no significant correlation with general confidence ($r = .13, p = .16$). Path weights for gaming confidence ranged from .54 to .86, and path weights for general confidence ranged from
.45 to .66. The model fit was strong, $\chi^2 (74) = 141.46, p < .001$, CMIN/DF = 1.912, RMSEA = .071, CFI = .918. *Pride* was left as a separate variable.

**Cognitive Distraction.** Cognitive Distraction was measured through the Immersion Scale for video game play (McGloin, 2011) (see Appendix C, Measure 16) along with seven additional items developed with influence from the Narrative Transportation Scale (Green & Brock, 2000) (see Appendix C, Measure 17). Extant scales on distraction often measure distraction related to very specific activities (e.g. Meana & Nunnink, 2006), so finding an established scale that would specifically be useful to this study was difficult. The study instead measured distraction in several ways. First, direct questions were created for this situation, such as, “I was distracted by what was going on around me while playing,” and “The things going on around me took me out of the game” (see Appendix C, Measure 17). Next, some Narrative Transportation Scale (NTS) items were appropriated and adjusted for use as part of this new distraction scale. For example, one NTS prompt read, “I was mentally involved in the narrative while reading it,” while an adapted prompt in the current study read, “I was mentally involved in the game while playing” (see Appendix C, Measure 17). The existing Immersion Scale was used in order to anchor the concept in a previously validated measure (McGloin, 2011). For example, participants were asked, “To what extent did you experience a sense of 'being there' inside the environment you saw/heard?” (see Appendix C, Measure 16).

Using this newly created distraction measure and the Immersion Scale (McGloin, 2011), distraction was measured both directly and as the inverse of transportation or immersion. Competitors immersed in a game are focused on the game, and immersion in the game with the result that a competitor is performing very well is referred to as being ‘in the zone.’ Competitors who are distracted are not in the zone.
In analyzing cognitive distraction, most items in the two scales were reverse coded so that higher values indicated greater distraction and less immersion in the game. For example, the item, “I was aware of activity going on in the room while playing would have,” would have remained as originally coded, with an answer of 1 or 2 indicating a low degree of distraction while a 6 or 7 would indicate high distraction. However, items such as, “I was mentally involved while playing the game” were reverse coded such that a participant answering 6 to indicate a high degree of involvement would be recoded as 2, indicating that they actually had a low degree of distraction.

Reliability for the existing immersion scale was \( \alpha = .81 \), but a CFA for the scale returned poor model fit as a one-factor solution, \( \chi^2 (44) = 333.71, p < .001, \) CMIN/DF = 7.58, RMSEA = .190, CFI = .650. In particular, one scale item asking if the game felt more like looking at a movie or through a window had a beta weight of -.07. However, the removal of this item did not improve model fit to any great degree, \( \chi^2 (35) = 316.88, p < .001, \) CMIN/DF = 9.05, RMSEA = .210, CFI = .656.

Reliability for the newly constructed distraction scale was \( \alpha = .75 \), but when analyzed together with the immersion scale items, the reliability for all twenty items of both scales was \( \alpha = .85 \). An EFA was run on all the items to determine the presence of unique factors. The Kaiser-Meyer-Olkin measure of sampling adequacy was .85, and Bartlett’s test of sphericity was significant, \( \chi^2 (190) = 1833.76, p < .001. \) The analysis returned five factors with Eigenvalues above 1, but the immersion scale item about viewing the game as if through a window or on a movie screen was the only item that loaded strongly onto the fifth factor. Given the potentially problematic nature of this item in both analyses, it was discarded, and the EFA was run again with 19 scale items.
The new test identified four factors with Eigenvalues greater than 1, KMO = .85, $\chi^2 (190) = 1833.76$. Of those 19 items, only 13 loaded distinctly onto a single factor without high secondary factor loadings. Three items that centered on awareness of noise and activity going on in the room had factor loadings between .615 and .843 with no secondary loadings higher than .240; this factor was labeled outside distraction ($\alpha = .67, M = 3.14, SD = 1.30$). Three items that addressed mental focus on the game and being ‘in the zone’ had factors loading between .798 and .855 with no secondary loadings higher than .266; this factor was labeled lack of mental involvement ($\alpha = .88, M = 2.67, SD = 1.12$). As noted before, because of the reverse coding, a high score indicates a lack of involvement while a low score indicated more involvement. Three items that measured a participant’s tendency to speak, smile, or make a sound in reaction to the game had factor loadings between .691 and .766 with no secondary loadings higher than .237; this factor was labeled lack of game interaction ($\alpha = .71, M = 4.57, SD = 1.52$). Finally, four items that gauged the extent to which a participant experienced the sights and sounds of the game as real had factor loadings between .693 and .849 with no secondary loadings higher than .270; this factor was labeled lack of reality immersion ($\alpha = .83, M = 4.24, SD = .99$). The respective variables from each of these four factors were combined into composite variables representing these dimensions. The other six items – three from the created scale and three others from the immersion scale – were discarded due to their high secondary factor loadings and lack of distinct thematic associations.

**Perceived Verbal Insults Scale.** To ensure that assigned participants experienced the verbal insults treatment as it was intended, all participants completed a scale measuring Perceived Verbal Insults toward the very end of the post-survey. This 5-item scale used a newly created 7-point Likert measure that recorded items on a continuum from *Strongly disagree* to
Strongly agree (see Appendix C, Measure 18). It included items such as, “Comments I heard were very aggressive” and “I felt personally insulted by some of the things said to me while I was playing.” Items in this scale were tested for reliability ($\alpha = .95$) and combined into a composite variable representing perceived verbal insults ($M = 2.34$, $SD = 1.63$).

**Additional Measures.** Finally, participants were asked questions that gathered additional information about them and their personal history, such as their high school and college experience in sport and some basic demographic questions. As with other measures not directly related to the model, this data was used for post hoc analyses to either help explain weaknesses in the model or to inform future inquiry. Results were also tested for gender effects.

**Chapter 4: Results**

**Participants**

Two hundred (200) participants from an introductory level Communication class at a large northeastern university in the United States participated in the study. Based on a random coin flip, a total of 86 (43%) were subjected to the verbal insult treatment condition. After reviewing the data, 17 cases were removed from the study for any one of the following reasons: the participant was under 18 years old, there were technical difficulties with the equipment during the lab session, the participant knew either the lab technician or the confederate, or the participant’s survey responses heavily suggested they knew what was going on and were providing biased answers. In one other case, the study had to be stopped mid-way through because a participant in the verbal insult condition did not want to continue. This left a total of 183 cases remaining, 79 (43%) in the treatment condition and 104 (57%) in the control condition.
Females accounted for 62.3% \((n = 114)\) of participants and males made up the other 37.7% \((n = 69)\). Participants ranged in age from 18 to 35 with an average age of 19.4 \((SD = 1.75)\). The majority of participants identified as White \((61.2\%, n = 112)\), with most others identifying as Black/African American \((9.3\%, n = 17)\), Latinx/Hispanic \((7.1\%, n = 13)\), or Asian \((19.7\%, n = 36)\).

Participants’ video game playing experience was calculated by averaging their answers to two questions, one about general video game experience, and one about experience playing Mario Kart specifically. Ratings ranged from 1 to 5.5 with a mean of 2.66 \((SD = 1.22)\). Overall, about half \((49.7\%)\) of participants reported video game experience of 2 or less. Those with a rating of 2 \((27.3\%, n = 50)\) made up the largest group and those with a rating of 1 \((13.7\%, n = 25)\) made up the second largest. As a whole, the pool of participants was relatively inexperienced at playing video games.

Participants’ experience in sport competition was calculated by adding their answers to a scaled question \((1-5)\) about high school sport experience to their answers on questions about whether or not they play a sport and/or club sport in college \((yes = 1, no = 0)\). Participants’ sport experience ratings ranged from 1 to 7 with a mean of 3.84 \((SD = 1.71)\). Participants with a rating of 5 \((35.0\%, n = 64)\) made up the largest group, those with a rating of 4 \((20.8\%, n = 38)\) made up the second largest, and those with a rating of 1 made up the third largest \((19.1\%, n = 35)\). Overall, the pool of participants had a relatively high degree of sport competition experience.

**Manipulation Check**

Participants in the treatment group were compared to those in the control group using a t-test to verify that the manipulation yielded significant differences in the auditory experience. Participants in the treatment condition \((M = 3.61, SD = 1.68)\) did perceive significantly more
verbal insults than those in the control condition \((M = 1.40, \ SD = 0.67), t(95.74) = -10.99, p < .001\), \textit{Hedges’ g} = 1.82. Notably, the two groups did not have equal variances. Levene’s Test for Equality of Variances found significant \((p < .001)\) variability between groups, but this was expected. While a lack of verbal insults can be experienced uniformly for the most part, there are multiple factors that can lead individuals to perceive actual verbal insults with varying degrees of severity, thus the greater amount of variability among participants in the treatment group was appropriate.

A one-way ANOVA analyzing just the cases in the treatment condition did find significant differences in perceived insults across confederates in the omnibus test, \(F(8, 69) = 2.207, p = .04\), but post hoc analyses using Tukey did not find significant differences between any two particular confederates. Additionally, female participants in the treatment group \((n = 50, M = 3.98, \ SD = 1.69)\) perceived verbal insults to a greater degree than males \((n = 28, M = 2.94, \ SD = 1.45), t(76) = -2.72, p = .008, \textit{Hedges’ g} = .65\). However, the sex of the confederate did not affect perceived insults; there were no significant differences in perceived verbal insults based on whether the confederate was male \((n = 43, M = 3.48, \ SD = 1.74)\) or female \((n = 35, M = 3.76, \ SD = 1.60), t(76) = -0.73, p = .47\).

**Path Model Analysis**

Hypotheses were tested using path model analysis conducted in AMOS. Four separate factors representing distraction were discovered, but it was determined that outside distraction and lack of mental involvement were the constructs that most closely resembled the original concept of cognitive distraction, so the model was run twice, once with each variable to determine if either analysis provided support for the hypotheses as proposed.
The model was first run using outside distraction (see Figure 2). As the manipulation test suggested, there was a positive relationship between the experimental condition and participants’ perceptions of being verbally insulted ($\beta = .67, p < .001$); participants in the trash talk treatment condition perceived significantly more verbal insults than those in the control condition. Perceived verbal insults also significantly predicted outside distraction ($\beta = .23, p = .002$), but distraction did not affect competitive performance as hypothesized ($\beta = .11, p = .08$), nor did distraction affect motivation to perform ($\beta = -.04, p = .54$). Moreover, the path beta weight from distraction to performance was the opposite of that predicted; a significant effect would have meant that outside distraction increased rather than decreased competitive performance. In this model, H1 was supported, but H2 and H3 were not.

Perceived verbal insults also predicted increased feelings of anger ($\beta = .33, p < .001$), and increases in anger had a weak negative effect on competitive performance ($\beta = -.13, p < .05$). However, while anger did affect participants’ motivation to perform, it had the opposite effect of that hypothesized; instead of anger increasing motivation to perform, more anger predicted less motivation to perform ($\beta = -.17, p = .02$). H3 and H5 were supported, but while there was a significant effect recorded for H4, the opposite result meant that the hypothesis was not supported.

Finally, the model found that perceived verbal insults significantly predicted an increase in feelings of shame ($\beta = .21, p = .004$), and an increase in feelings of shame in turn decreased competitive performance ($\beta = -.34, p < .001$). However, feelings of shame did not significantly affect motivation to perform as hypothesized ($\beta = -.04, p = .56$), although motivation to perform by itself was positively related to competitive performance overall ($\beta = .30, p < .001$). H6, H8, and H9 were supported, but H7 was not. Despite the significant paths in the model, the overall
model fit was very poor, $\chi^2 (10) = 108.14, p < .001$, CMIN/DF = 10.81, RMSEA = .232, CFI = .677.

Next the model was run using lack of mental involvement as the distraction variable (see Figure 3). There were minor changes to some of the path weights for the anger and shame variables, but in this case there were two notable changes. The first change was that perceived verbal insults did not significantly predict a lack of mental involvement in the game ($\beta = .12, p = .10$). Lack of mental involvement also did not affect competitive performance ($\beta = -.08, p = .21$) again, but notably the path from lack of mental involvement to competitive performance at least represented the negative relationship that was predicted in this case. However, a second notable difference was that the path from lack of mental involvement to motivation to perform in this case was significant ($\beta = -.28, p < .001$). In this model, H3 was supported, although the overall model fit remained very poor, $\chi^2 (10) = 109.27, p < .001$, CMIN/DF = 10.93, RMSEA = .234, CFI = .681.

The model was then run with both outside distraction and lack of mental involvement as distraction variables (see Figure 4). Logically, outside distraction could lead to a lack of mental involvement in the game, so this extra path was added. The model showed a definite effect of outside distraction on lack of mental involvement ($\beta = .26, p < .001$), yet even with the removal of non-significant paths, the model fit remained poor, $\chi^2 (18) = 120.72, p < .001$, CMIN/DF = 6.71, RMSEA = .177, CFI = .692.

Additional analyses were performed to see if a model with good fit could be found (see Figure 5). Three other paths were found to be significant, including a direct path from perceived verbal insults to competitive performance ($\beta = .14, p < .05$), a path from anger to lack of mental involvement ($\beta = .15, p < .05$), and a path from anger to shame ($\beta = .60, p < .001$). While the first
two paths improved model fit to a degree, it was this last path between anger and shame that was the most substantial addition and the one which finally gave the model excellent fit, $\chi^2 (15) = 23.39$, $p = .08$, $\text{CMIN/DF} = 1.56$, $\text{RMSEA} = .055$, $\text{CFI} = .975$. Notably, the addition of this path also caused a substantial decrease in the path from perceived verbal insults to anger, causing it to fall from $\beta = .33$ to $\beta = .20$.

**Research Question 1**

To answer R1, a linear regression analysis was performed using the six dimensions of competitiveness as independent variables to predict anger. The overall model was non-significant, as were five of the six IVs, $R^2 = .05, F(6,167) = 1.49, p = .19$. Desire to win by itself did weakly predicted anger ($\beta = .22, p = .02$), but the overall answer to R1 was that dimensions of competitiveness did not significantly predict anger in the study. An exploratory regression analysis was conducted to see if dimensions of competitiveness predicted shame. The model was again non-significant, as were all six dimensions of competitiveness, $R^2 = .07, F(6,166) = 1.94, p = .08$, although desire to win again came close to statistical significance ($\beta = .18, p = .06$). Next, the six dimensions were tested to see if they predicted pride. Enjoyment of competition ($\beta = .37, p = .003$) and gaming competitiveness ($\beta = .31, p < .001$) both positively predicted feelings of pride. Overall the model predicted 27% of the variance, $R^2 = .27, F(6,167) = 10.30, p < .001$. Finally, the six dimensions were tested to see if they predicted excitement. Once again, enjoyment of competition ($\beta = .37, p = .005$) and gaming competitiveness ($\beta = .20, p = .01$) both positively predicted feelings of excitement. The model predicted 20% of the variance, $R^2 = .20, F(6,167) = 6.94, p < .001$. 
Research Question 2

To answer R2, a linear regression analysis was performed using the four dimensions of confidence as independent variables to predict shame. The overall model was non-significant, as were all four of the IVs, $R^2 = .04$, $F(4,176) = 1.75, p = .14$. As before, an exploratory regression analysis was run to determine if dimensions of confidence predicted anger, but this model too was non-significant along with all four IVs, $R^2 = .04$, $F(4,177) = 1.74, p = .14$. However, a third analysis using pride as the DV found that gaming confidence positively predicted feelings of pride ($\beta = .46, p < .001$). The model predicted 21% of the variance, $R^2 = .21$, $F(4,177) = 11.87, p < .001$. Dimensions of confidence also significantly predicted the experience of excitement, $R^2 = .10$, $F(4,177) = 5.13, p = .001$. In particular, gaming confidence again predicted the experience of excitement ($\beta = .32, p < .001$).

Post Hoc Analyses

A series of linear regression analyses were first run to test the suggested relevance of the PAD variables to the experience of trash talk. Perceived verbal insults, anger, and shame were analyzed as potential predictors for the experience of pleasure, arousal, and dominance. In the first model, perceived verbal insults ($\beta = -.15, p = .04$), anger ($\beta = -.21, p = .02$), and shame ($\beta = -.24, p = .006$) all negatively predicted the experience of pleasure and together accounted for 22% of the variance, $R^2 = .22$, $F(3,177) = 16.92, p < .001$. In the second model, none of the IVs significantly predicted the experience of arousal, $R^2 = .03$, $F(3,176) = 1.81, p = .15$. In the third model, only shame ($\beta = -.28, p = .003$) negatively predicted the experience of dominance with 12% of the variance accounted for, $R^2 = .12$, $F(3,175) = 7.98, p < .001$.

Next, given that neither shame nor anger influenced participants’ motivation to perform as predicted, additional regression analyses were conducted to determine if any other variables
influenced motivation to perform. A linear regression analysis was performed to determine whether any of the following variables significantly predicted motivation to perform: pride, excitement, performance expectancy, reality immersion, pleasure, arousal, dominance, competitive desire to win, goal orientation, gaming competitiveness, enjoyment of competition, competitiveness, gaming confidence, and general confidence. Of the 14 IVs, only excitement ($\beta = .30$, $p = .003$), performance expectancy ($\beta = -.37$, $p < .001$), gaming competitiveness ($\beta = -.20$, $p = .03$), and gaming confidence ($\beta = .27$, $p = .005$) were significant predictors of motivation to perform. The full model accounted for 31% of the variance, $R^2 = .31$, $F(14,154) = 4.90$, $p < .001$.

The overall results were unexpected in some cases. For instance, performance expectancy negatively predicted motivation to perform, meaning that the better a participant expected to perform, the less motivated to perform they were, and vice versa. The same unanticipated results occurred for gaming competitiveness, which negatively predicted motivation to perform. In other words, the more competitive participants felt about gaming, the less motivated to perform they were, and vice versa. The results of the other two variables were more conventional; an increase in excitement positively predicted motivation – although not as much as expectancy – and greater degrees of gaming confidence predicted motivation.

Regression analyses were conducted to determine if participants’ video game experience or sport experience alone predicted their perception of verbal insults, motivation to perform, anger, shame, game performance, competitive desire to win, contentiousness, enjoyment of competition, competitiveness, general confidence, social confidence, speaking confidence, pleasure, arousal, and dominance. Eight of the models were non-significant: perception of verbal insults, motivation to perform, anger, shame, contentiousness, general confidence, speaking
confidence, and arousal. Not surprisingly, video game experience was a significant predictor of game performance ($\beta = .28$, $p < .001$), $R^2 = .09$, $F(2,179) = 9.10$, $p < .001$. It also significantly predicted pleasure ($\beta = .29$, $p < .001$), $R^2 = .10$, $F(2,180) = 10.22$, $p < .001$, and dominance ($\beta = .21$, $p = .005$), $R^2 = .06$, $F(2,178) = 5.35$, $p = .006$. Sport experience, on the other hand, significantly predicted competitive desire to win ($\beta = .24$, $p = .001$), $R^2 = .07$, $F(2,177) = 6.62$, $p = .002$; competitiveness ($\beta = .21$, $p = .004$), $R^2 = .06$, $F(2,179) = 5.55$, $p = .005$; and social confidence ($\beta = .19$, $p = .009$), $R^2 = .05$, $F(2,179) = 4.21$, $p = .02$. Interestingly, both video game experience ($\beta = .24$, $p = .001$) and sport experience ($\beta = .29$, $p < .001$) significantly predicted enjoyment of competition, $R^2 = .14$, $F(2,178) = 14.17$, $p < .001$.

Finally, regression analyses were conducted to determine if the study condition (-1 = control, 1 = treatment) predicted whether participants interacted with the confederate, or whether participants were inclined to trash talk to the confederate. These analyses were conducted using the single-item measures from the lab technician observation sheets (see Appendix E, Form 1). In the first model, study condition did not significantly predict participant interaction with the confederate. In the second model, however, placement in the treatment condition did significantly predict participant inclination to trash talk to the confederate ($\beta = .28$, $p = .001$), $R^2 = .08$, $F(1,179) = 14.73$, $p < .001$. In other words, it was when a confederate first directed trash talk at a participant that the participant sometimes felt inclined to reciprocate.

**Chapter 5: Discussion**

**Summary of Findings**

The hypothesized model described the effects experienced by participants in response to verbal insults in a competitive context reasonably well, although with some caveats. Broadly stated, emotional factors influenced participants’ game performance more directly than mental
factors, and there were unexpected connections between the two primary emotion variables. Distraction itself was also a much more complex concept than first conceived.

Beginning with distraction, the literature review noted that verbal insults could be both an auditory and a cognitive distraction, yet the hypothesized model ultimately presented distraction as a unidimensional variable. The existing video game immersion scale that was used also conceived immersion as unidimensional, but multiple factors emerged within the scale upon analysis, even aside from the addition of the other distraction items. These factors included how immersed in the reality of the game the participant was, their inclination to physically or verbally interact with the game, and their mental involvement in the process of playing the game. Outside distraction in the form of awareness of stimuli present in the room was a completely separate factor, not only based on the factor analysis, but as confirmed by the results of the model as well. In other words, the study confirmed the presence of both auditory and cognitive distraction as separate variables.

While perceived verbal insults positively influenced auditory distraction in the first model, they did not directly lead to a lack of mental involvement in the game itself, i.e. cognitive distraction, in the second model. Rather, the relationship between these variables was fully mediated; perceived verbal insults influenced auditory distraction, and that auditory distraction in turn increased cognitive distraction. Yet while perceived verbal insults did lead to outside distraction and indirectly to a lack of mental involvement in the game, this relationship again stopped short of directly influencing participants’ performance in the game. This effect was once again mediated through motivation to perform.

These results make sense in hindsight. Both experimental groups were given an auditory treatment, so the significant positive effects of verbal insults on auditory distraction indicated an
effect over and above any auditory distraction caused by the neutral chatter represented in the control condition script. The negatively valenced informational value of the novelty sound was more important. It was this negative valence of the trash talk treatment that likewise lead the auditory distraction to have a cognitive effect. Humans are generally able to filter out sound that has no cognitive or emotional value to them, but as noted earlier, the purpose of trash talk is to engage a competitor’s mind in psychological stress by manipulating the threat of failure. Sowing doubt in one’s own ability to perform does not directly affect performance, however; as noted in the literature reviewed on goal attainment, it affects motivation (see Atkinson, 1958). The effects of emotions such as anger can be physiological, but the effects of distraction are predominantly psychological.

Overall, motivation to perform had a relatively strong influence on participants’ competitive performance. The hypothesized model leaned more heavily on emotional factors to influence motivation to perform, though, and contrary to those predictions, participants’ motivation had little to do with their emotions. Shame did not predict motivation at all, and anger weakly predicted it, but in the opposite direction as anticipated. Rather than making participants’ more eager to perform as anticipated, it had the opposite effect; participants were less inclined to put effort into the game when they felt angry.

Shame had the strongest direct effect on competitive performance, and that effect was arguably physiological, although the exact physiological experience is unclear. The literature suggested that shame would decrease arousal, but shame was not a significant predictor of arousal positively or negatively during analysis. Shame did, however, negatively predict dominance, so perhaps the closest explanation for the relationship of shame to performance
given available information is that participants engaged in a kind of active submission to their opponent during game play.

The interaction of shame and anger in the model was also unexpected. Extant literature suggested that anger would produce strong motivating effects (e.g. Lazarus, 2000), but while verbal insults did influence anger, this anger failed to translate into motivation. The third model returned a path weight of .33 for the effects of perceived verbal insults on anger and only a path weight of .21 for the effect of insults on shame, but the direct effect of shame on competitive performance (-.33) was stronger than the direct effect of anger on performance (-.14). Anger had more of an impact on motivation to perform (-.20), which then had an effect on performance (.30). In the fourth model, however, the addition of a path between anger and shame changed the effect of perceived verbal insults on anger. The path weight decreased from .33 to .20, while the path from perceived insults to shame stayed the same. This indicated that some effects of the verbal insults that were originally connected directly to anger were now being rerouted through shame.

The strong relationship between shame and anger – as first suggested by their correlation in the CFA for the CASC scale – was surprising at first. The original model hypothesized that participants would feel either anger or shame but not both; the two emotions were in fact conceived to be opposite reactions. As noted earlier, anger promotes approach behaviors in the stimulus-organism-response paradigm, or the equivalent of the fight response in the fight-or-flight threat-response dichotomy (Carver & Harmon-Jones, 2009; Harmon-Jones & Allen, 1998). Shame promotes an avoidance response, the equivalent of flight response in the threat-response paradigm. If the explanation above is correct, shame would provoke submission from those who experienced it. That participants in the present study thus seemed to be experiencing both anger
and shame at the same time, however, suggested that one might be causing the other. Given the changes in path weights when the connection between shame and anger was added, the results in fact indicated that shame was the primary emotional affect and that at least some of participants’ anger may have been the byproduct of their feelings of shame; that is, experiencing trash talk made participants feel shame, and those feelings of shame in turn made them angry.

Extant research strongly supports this interpretation. The link between shame and anger was first noted in clinical case studies by Lewis (1971), who observed that those feeling shame often directed hostility towards the self initially, but easily turned that hostility outward toward an ‘other’ as a defense mechanism. Scheff (1987) called this phenomenon a shame-rage spiral and noted that it could manifest either “as being angry (at self and/or at other) that one is ashamed, or being ashamed that one is angry” (p. 111). Later analyses in fact found consistent evidence that shame-proneness was positively correlated with anger arousal (Tangney, Wagner, Fletcher, & Gramzow, 1992).

The connection of anger to shame in participants’ experiences may also explain another anomalous effect related to anger in the model. H4 predicted a positive effect for anger on motivation to perform, but the actual results found a negative effect, indicating that greater degrees of anger decreased participants’ motivation to perform. One possible explanation for this is that the anger participants felt in reaction to the verbal insults did not generate a sufficient amount of arousal to be motivating. The post hoc regression analysis in fact found that neither verbal insults, nor anger, nor shame were significant predictors for changes in participants’ levels of arousal. The original CFA for the CASC scale also found no significant correlation between anger and excitement. In short, the ‘anger arousal’ variable originally targeted for the model lacked arousal. It was assumed that anger would necessarily involve an increase in arousal and
that participants would then either direct that anger in some useful way allow it disrupt their performance, but this assumption fell short at the start.

All of this begs the question of why participants did not feel anger in the way or to the degree that the literature suggested or the model predicted they would. Clearly the experience of trash talk did disrupt or manipulate the emotions of participants as it was intended to (Measer, 2014), but how that emotion was processed by participants did not line up with initial expectations. There are several answers for this, all likely due to the competitive activity as it related to the participant pool itself. The earlier snapshot of participants showed that the most had fairly low levels of video game playing experience. Of the variables found to predict motivation to perform in post hoc analyses, gaming competitiveness negatively predicted motivation, and gaming confidence positively predicted it. These results suggested, first and foremost, that much of participants’ motivation was contingent upon gaming-related factors. In other words, the specific competitive activity, not just the competition itself, mattered.

It was not completely clear why gaming competitiveness was a negative predictor of motivation, but one possible explanation is that the relatively low-level game settings of the experiment were off-putting to those with high degrees of gaming competitiveness such that their motivation to perform decreased. According to flow theory, skill level is a mediator to both performance and enjoyment; a player must experience an ideal balance between their own skill level and the challenges of the game in order to be properly motivated (see Csíkszentmihályi, 1990). In the case of the study then, the challenges of the game may not have been enough to motivate very experienced game players to perform. Several other post hoc analyses also support this interpretation. Video game experience was a non-significant predictor of both motivation to
perform and arousal, and performance expectancy was a significant negative predictor of motivation to perform.

The implication regarding this last point is that participants who expected to do well in the game significantly lacked the motivation to actually put effort into their performance. The literature on expectancy in goal attainment in competition applies here as well (see Atkinson, 1958). In Atkinson’s experiment, participants put forth the most effort in a competition when the challenge of achieving a reward was balanced; that is, the goal was not too out-of-reach nor was it too easy to attain. In the case of the present study, participants were largely female who reported relatively low degrees of video game experience. The goal for many in the study, then, was not to win at the video game, but to earn their class credit.

Unfortunately, the goal of earning class credit was a foregone conclusion for anyone who simply completed the study, so participant motivation might have been muted due to the lack of challenge related to the true goal to be attained. It was noted in the literature that motivational variables need to provide incentive to be effective (Bindra, 1968; Bolles, 1972; Mogenson & Phillips, 1976), and verbal insults can provide some of that motivation, i.e. they can stimulate the desire to beat one’s opponent (Yip et al., 2018). This implies a necessary investment in the outcome of the activity being performed, however.

According to self-determination theory (SDT) (Deci & Ryan, 1985, 2000), competence, autonomy, and relatedness are the three psychology needs that people have when undertaking an activity. It was originally suggested that competence would be the factor of most concern in this triumvirate, but in this case it turned out that the study may have lacked relatedness for most participants, although those with low degrees of skill or experience in video games may have felt their lack of competence as well. While some literature suggested that competition itself was
sometimes an inherent source of motivation (Amsel & Penick, 1962; Marx, 1956), that did not appear to be the case with this study. In short, the effects of anger were anomalous because participants with a greater degree of gaming experience and interest did not feel sufficiently challenged by the activity to generate the arousal needed for the appropriate direction of their emotions. By contrast, participants with less gaming experience and interest were not invested enough in the activity to be moved to arousal when they and their skills were verbally attacked.

One other explanation is that the non-physical nature of the competitive activity hindered the expression of anger and thus dampened arousal. Participants were playing a game in a relatively quiet room with a lab technician watching. Anger is subject to learned suppression (Buck, 1985), so an ingrained inclination to avoid the expression of anger in this case may have interfered with results. One study (Davis, Woodman, & Callow, 2010) found, for instance, that the repression of anger impeded the anger-performance relationship previously discussed. It is important to remember, however, that these pitfalls merely explain several unusual results; overall, the study still found multiple significant hypothesized effects.

For R1, only competitive desire to win weakly predicted the experience of anger, but all other dimensions of competitiveness were non-significant, as was the model as a whole. Notably, most of the personal competitiveness variables were more strongly associated with participants who had experience playing physical sports rather than video game experience, according to post hoc regression analyses. In other words, competitiveness was mostly associated with participants who had sport experience rather than video game experience, and in an experiment involving a video game playing competition, most dimensions of competitiveness were not predictive of either anger or shame. Clearly there was disconnect between the factors that might trigger a competitive response and the choice of competitive activity in the study. As noted earlier,
competitiveness may depend on factors like the relevance of the task to the competitor and the relational closeness of the competitor to their opponent (Garcia et al., 2013), and the study was lacking in both cases.

Confidence was also an unexpectedly non-significant factor during analyses. R2 questioned whether confidence might be related to feelings of shame, but analyses found that dimensions of confidence predicted neither shame nor anger. Analyses did find, however, that confidence in one’s video game playing ability positively and rather strongly predicted feelings of pride and excitement. Dimensions of pride were originally assumed to be similar albeit opposite components of the shame emotion variable, but the two factors were only marginally correlated; pride was not a direct inverse of shame. One possible explanation for this, supported by the post hoc results noted above, is that pride was experienced directly in relationship to game performance while participants many have experienced shame on a more personal level. If the experience of pride was game-driven and the experience of shame was felt on a personal level, this may explain the distinction between the two variables as well as their relationship to confidence. Recall that Shrauger and Schohn (1995) defined self-confidence as “people’s sense of their competence and skill, their perceived capability to deal effectively with various situations” (p. 256). If participants felt pride in relationship to the game experience specifically and potentially even in their ability to deal effectively with the trash talk, then that was a reflection of their self-confidence.

The other variable that seemed to heavily influence participants’ experience in the study was pleasure. Perceived verbal insults, anger, and shame all negatively predicted the experience of pleasure. Participants largely joined the study to earn class credit and their performance in the game was immaterial to whether they earned this credit or not, so it is not surprising that the
quality of the experience was a major determinant in the response of participants to the stimuli. As noted previously, the PAD model has generally been applied to study of pleasure outcomes in recreational contexts, (see Floyd, 1997; Holbrook, Chestnut, Oliva, & Greenleaf, 1984; Mehrabian & Wixen, 1986), and there was clearly an effect on pleasure in this case, although a decidedly negative one. Moving forward, the general experience of pleasure will need to be considered in future models on the study of trash talk.

Finally, the results of regression analyses on participant interactions with the confederate were unexpected for one analysis, but somewhat expected for the other. Observationally, participants interacted with confederates much more than had been anticipated in the control condition. The control condition script was designed to be neutral auditory filler, yet according to observation sheet notes, lab technicians frequently observed unprompted prosocial responses from participants toward confederates related to control script lines. For instance, simple thinking-out-loud comments made by the confederate about getting pizza generated questions from the participant about the best place near campus to order, and confederate comments about needing to remember to do laundry prompted similar declarations from the participant as well as stories about broken machines in the certain dorm complexes. Script lines that were intended to simply provide background noise for the control condition in fact seemed to stimulate occasional conversations with participants.

By contrast, most participants in the treatment condition appeared to shut down and remain silent when confronted with the confederates’ verbal insults throughout the game, according to lab technician notes. The lack of a significant result for the interaction variable regression analysis was thus surprising, as a significant result confirming more interaction in the
control condition had been expected. The analysis was even run after subtracting the trash talk response variable from the general interaction variable, and the results were still non-significant.

The incongruity of these results may simply be due to observational bias, but it is also possible that the fault was in the simplicity of the measurement tool. As noted, lab technicians used a one-item scale to indicate how often participants interacted with the confederate, but the scale did not record the nuances or depth of this interaction. Based on a review of observation sheet notes, lab technicians indicated interaction with confederates when participants did as little as laugh awkwardly at line of trash talk. In short, there was no mechanism on the observation sheet for indicating the difference between a polite laugh and a true interaction that included the conveyance of information or the asking of a question. Multiple, more nuanced measures of interaction and potentially more thorough participant training were needed, as it is believed that the shortcoming for this measure lead to the non-significant result for this analysis.

The results of the regression analysis on participant trash talk, on the other hand, did coincide with lab technician observations. Participants in the control condition rarely if ever initiated trash talk themselves, but it was sometimes observed that participants in the treatment condition would trash talk back to confederates once verbal aggressiveness had been initiated. Most often, participants engaged in trash talk only if they were winning against an inferior opponent, in which case their trash talk was more teasing and less aggressive than the confederate’s own trash talk. These distinctions are not present in the reported regression analysis – again evidence for the need of a more thorough measure – but the analysis does confirm that placement in the trash talk treatment condition did predict participant usage of trash talk themselves.
Limitations

One limitation of the study was the inability to provide a fully consistent experience across participants. Due to the availability of lab personnel, nine separate confederates had to be used, and while every effort was made during training to ensure that confederates delivered their lines similarly, some confederate effects were nevertheless detected. In part, participant experience was also necessarily dictated to their own reactions to stimuli, as confederates were sometimes required to interact with some participants more than others when participants asked them questions or otherwise tried to engage them in conversation. Due to the confederates’ need to interact in order to keep up the ruse, it was impossible to keep the experience 100% uniform for all participants.

The trash talk script itself was limited in its scope of insults. Misogynistic and homophobic comments are a staple of competitive trash talk, but the study omitted them on the grounds that they might confound results by creating unwanted gender or sexuality effects. The scripts also avoided references to family members (e.g. “your momma”), physical disabilities, or graphic details that might have triggered harmful or extreme reactions in participants. As such, the degree and type of verbal aggressiveness that participants could experience was limited.

The study also used deception in hiding the true nature of the manipulation, and while every precaution was taken to keep participants from discovering the deception, there was always the possibility that some participants knew what was going on. Participants were all from the same class, albeit a very large class, and some by their own admission in the survey knew others who had participated. The survey results and the observations of the lab technicians indicated that at least a few participants knew what was going on. Nevertheless, the vast majority of participants did seem to believe the deception and undertake the study in good faith.
The biggest limitation, as indicated by the data, is that the study was unable to sufficiently arouse participants to provoke some of the hypothesized effects. Data indicated that some arousal was achieved, but participants appeared to lack the requisite amount of buy-in to the activity to make that arousal productive. Rather, the anger that participants felt was either too weak to be useful or was self-directed at being made to feel shame. However, while these are not the results that were expected or hoped for, they have still been very useful.

**Future Research**

Several areas for future analysis are readily apparent. First and foremost, there is room to expand the originally hypothesized model, especially with the addition of pleasure as a variable. Analyses indicated that pleasure was related to a number of other variables currently in the model. Moreover, in a study examining game play or sports, the absence of pleasure in the model now seems like a glaring omission. The results of this preliminary exploration, however, at least provide a starting place for its eventual inclusion in the study of trash talk.

There is also evidence that trash talk may function on a fundamentally different level in an activity like video game playing versus in a physical activity like sports. Dimensions of competitiveness were associated with sport experience but ultimately failed to have much influence on variables in this video game-based study. Video game play was chosen as an operationalization because it was easier to control the participant’s environment and activities, but the lack of physical activity, or perhaps more specifically a lack of adrenalin, may have caused some of the unexpected results. Attempting experimental research in an actual, physical sport setting, if possible, would be an ideal next step.

The social aspect of trash talk, while not the original focus of the study, is also an area for expansion. Results of post hoc analyses indicated that in the majority of cases, participants only
engaged in trash talk if it was first initiated by the confederate. Yet it is apparent from experience that people must necessarily engage in trash talk on a regular basis. One area of inquiry is to determine what prompts individuals to initiate trash talk and what prompts others to respond to it when it is directed at them. Trash talk is often considered a part of the social discourse between teammates, and there is clearly also the possibility that it is an accepted type of discourse between competitors as well.

Lastly, the study did not directly explore gender effects, but there was nevertheless some evidence to suggest that males and females may experience trash talk differently. While the gender of the trash talker did not have any significant effects, the gender of the target did; based on the manipulation check, female participants experience the verbal insults more strongly than males. There is thus cause to reanalyze the results of the current study through the lens of gender, and reason to further expand research into the uses and effects of trash talk across gender in other contexts. Trash talk is largely associated with males (e.g. Kniffin & Palacio, 2018), so one area to explore may be expectancy violations associated with the trash talk behavior of men and women. Likewise, intercultural differences in trash talk expectancies may be relevant, such as the prevalence of trash talk in African American cultural traditions (Jordan, 1983).

**Conclusion**

The idea of trash talk as an emotional manipulation is clearly present in the results of this study, if not exactly in the ways that were hypothesized. Moreover, while the study fell short in some attempts to influence motivation to perform, it nevertheless supported a number of ideas from various motivational theories, namely that a balance of skill and challenge are important to stimulate motivation, as are people’s perceptions of the difficulty of a goal to be attained. Regardless, the ability of trash talk to negatively affect the game performance of a competitor
was confirmed. More importantly, the study provided the some much-need initial ground-work for a more nuanced and expanded exploration of the emotional and psychological effects of trash talk on an opponent in a competitive context.

The reasons for pursuing this nuanced and expanded exploration are two-fold. To start, trash talk is pervasive in competition, and competition is pervasive in human interaction. It seems detrimental overall not to make any attempt to understand a phenomenon that appears so ubiquitously in society. More specifically, understanding this phenomenon is the first step toward designing inoculations and interventions against its effects. Sport psychology techniques such as goal setting and emotional regulation in athletic competitions (e.g. see Gardner & Moore, 2007) have been increasingly used as components of athletic preparation at higher levels of competition along with physical practice; however, most sport psychological interventions seem to focus on self-actualization. Resistance against psychological attacks from an opponent have yet to become a priority in this field. The techniques of sport psychology already lend themselves toward this use, but what is currently lacking is a thorough understanding of how to effectively apply them to the particular context of trash talk.

Studying the effects of trash talk can be valuable, not just for improving performance in athletic competitions, but for improving performance in all competitions, from politics, to careers, to marketing. Competition is rarely ever just physical; it is psychological and emotional as well. Trash talk is one strategy in a competitor’s arsenal, and knowing how to counter it may sometimes be a key to success.
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Appendix A: Models

Figure 1. Hypothesized Model

![Hypothesized Model Diagram]

Figure 2. Model with Outside Distraction Variable

![Model with Outside Distraction Variable Diagram]

$\chi^2 (10) = 108.14, p < .001$, CMIN/DF = 10.81, RMSEA = .232, CFI = .677
Figure 3. Model with Lack of Mental Involvement Variable

\[ \chi^2 (10) = 109.27, \ p < .001, \ \text{CMIN/DF} = 10.93, \ \text{RMSEA} = .234, \ CFI = .681 \]

Figure 4. Model with Both Distraction Variables

\[ \chi^2 (18) = 120.72, \ p < .001, \ \text{CMIN/DF} = 6.71, \ \text{RMSEA} = .177, \ CFI = .692 \]
Figure 5. Final Model

\[ \chi^2 (15) = 23.39, p = .08, CMIN/DF = 1.56, RMSEA = .055, CFI = .975. \]
Appendix B: Tables

Table 1. Competitiveness Correlation Matrix

<table>
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<tr>
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<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
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<tbody>
<tr>
<td>1 Competiveness</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2 Enjoyment of Competition</td>
<td>.82**</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Contentiousness</td>
<td>-.35**</td>
<td>-.47**</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Gaming Competitiveness</td>
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<td>.04</td>
<td>-.06</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Goal Orientation</td>
<td>.53**</td>
<td>.36**</td>
<td>.04</td>
<td>-.01</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>6 Desire to Win</td>
<td>.55**</td>
<td>.36**</td>
<td>-.13</td>
<td>.35**</td>
<td>.25*</td>
<td>-</td>
</tr>
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**p ≤ .001, *p < .01
Appendix C: Condition Scripts

Script 1. Verbal Insult/Trash Talk Treatment
1. I am going to kick your ass at this game.
2. You know this isn’t golf, right. There’s no handicap.
3. I can’t believe they’re actually going to give you college credit for this.
4. Maybe your strategy should include, you know, not sucking.
5. So clearly hand-eye coordination not your thing. You are awful at this game.
6. Is that the best you’ve got? My three-year old cousin plays better than you do.
7. Grab a straw because you suck!
8. Seriously, you’re kind of pathetic at this.

Script 2. Control Condition Script
1. Man, I haven’t played this game in forever.
2. Ugh, I’m starving. I wonder what they’re serving in the dining hall.
3. Shit, I hate this game. It makes me dizzy.
4. I am totally ordering a pizza after this.
5. I still like the original Super Mario Brothers. That was classic.
6. I have to remember to do some laundry later.
7. This has got to be the easiest college credit I’ve ever earned.
8. No, not pizza. I’m getting wings. Yeah, that’s it. I’m totally getting wings.
Appendix D: Measures

Measure 1. Competitiveness Index (Pre-Survey)
Response Options: Strongly Disagree, Disagree, Somewhat Disagree, Unsure/Neutral, Somewhat Agree, Agree, Strongly Agree

1. I like competition.
2. I find competitive situations unpleasant.
3. I don’t like competing against other people
4. I enjoy competing against an opponent.
5. I try to avoid competing with others.
6. I get satisfaction from competing against others.
7. I dread competing against other people.
8. I am a competitive individual.
9. I will do almost anything to avoid an argument.
10. I try to avoid arguments.
11. I often remain quiet rather than risk hurting another person's feelings.
12. In general, I will go along with the group rather than create conflict.
13. I will challenge someone when I think they are wrong.
14. I often try to outperform others.

Measure 2. Sport Orientation Questionnaire (Pre-Survey)
Response Options: Strongly Disagree, Disagree, Somewhat Disagree, Unsure/Neutral, Somewhat Agree, Agree, Strongly Agree

1. I am a competitive person.
2. I try my hardest to win.
3. I am a determined competitor.
4. I want to be the best every time I compete.
5. I look forward to competing.
6. I thrive on competition.
7. My goal is to be the best gamer possible.
8. I enjoy competing against others.
9. I want to be successful in playing video games.
10. I work hard to be successful in playing video games.
11. The best test of my ability is competing against others.
12. I look forward to the opportunity to test my skills in competition.
13. I perform my best when I am competing against an opponent.
15. I am most competitive when I try to achieve personal goals.
16. I try hardest when I have a specific goal.
17. Reaching personal performance goals is very important to me.
18. The best way to determine my ability is to set a goal and try to reach it.
19. Performing to the best of my ability is very important to me.
20. Winning is important.
21. Scoring more points than my opponent is very important to me.
22. I hate to lose.
23. The only time I am satisfied is when I win.
24. Losing upsets me.
25. I have the most fun when I win.

Measure 3. Personal Evaluation Inventory (PEI)

Response Options: Strongly Disagree, Disagree, Somewhat Disagree, Unsure/Neutral, Somewhat Agree, Agree, Strongly Agree

1. I am at mixing socially. (So+)
2. I sometimes avoid taking part in video games and gaming activities because I don’t think I am good enough at them. (At-)
3. Talking in front of a group makes me uncomfortable. (Sp-)
4. I would like to know more people, but I am reluctant to go out and meet them. (So-)
5. Gaming is an area in which I excel. (At+)
6. I dread the thought of getting up and talking in public. (Sp-)
7. When I think about playing video games, I am enthusiastic and eager, rather than apprehensive and anxious. (At+)
8. I often feel unsure of myself even in situations I have successfully dealt with in the past. (G-)
9. I am a better gamer than most people of my age and sex. (At+)
10. I lack some important capabilities that may keep me from being successful. (G-)
11. When I have to talk before a group of people I usually feel assured that I can express myself effectively and clearly. (Sp+)
12. Being poor at video games is a weakness of mine. (At-)
13. For me, meeting new people is an enjoyable experience that I look forward to. (So+)
14. Much of the time I don’t feel as competent as many of the people around me. (G-)
15. I almost always feel comfortable at parties or other social gatherings. (So+)
16. I have fewer doubts about my abilities than most people. (G+)
17. When things are going poorly, I am usually confident that I can successfully deal with them. (G+)
18. I am more concerned than most people about my ability to speak in public. (Sp-)
19. I have more confidence in myself than most people I know. (G+)
20. I am as capable as most people at speaking before a group. (Sp+)
21. When I go to social gatherings, I frequently feel awkward and ill at ease. (So-)
22. I have sometimes avoided taking classes or doing other things because they would require me to make presentations before a group. (Sp-)
23. I am better at meeting new people than most people seem to be. (So+)
24. I am less concerned than most people about speaking in public. (Sp+)
25. If I were more confident about myself, my life would be better. (G+)
26. I don’t feel as comfortable in groups as most people seem to. (So-)

Measure 4. PAD Emotion Scale – Pleasure (Pre- & Post-Survey)

Right now I feel… (Pre)
After playing the game I feel… (Post)
Unhappy 1 2 3 4 5 6 7 Happy
Annoyed 1 2 3 4 5 6 7 Pleased
Unsatisfied 1 2 3 4 5 6 7 Satisfied
Discontent 1 2 3 4 5 6 7 Content
Despairing 1 2 3 4 5 6 7 Hopeful

**Measure 5. PAD Emotion Scale – Arousal (Pre- & Post-Survey)**
Right now I feel… (Pre)
After playing the game I feel… (Post)
Relaxed 1 2 3 4 5 6 7 Stimulated
Calm 1 2 3 4 5 6 7 Excited
Sluggish 1 2 3 4 5 6 7 Frenzied
Dull 1 2 3 4 5 6 7 Jittery
Sleepy 1 2 3 4 5 6 7 Wide Awake
Unaroused 1 2 3 4 5 6 7 Aroused

**Measure 6. PAD Emotion Scale – Dominance (Pre- & Post-Survey)**
Right now I feel… (Pre)
After playing the game I feel… (Post)
Unsure 1 2 3 4 5 6 7 Confident
Influenced 1 2 3 4 5 6 7 Influential
Submissive 1 2 3 4 5 6 7 Dominant
Guided 1 2 3 4 5 6 7 Autonomous
Controlled 1 2 3 4 5 6 7 Controlling
Without Control 1 2 3 4 5 6 7 In Control
Unimportant 1 2 3 4 5 6 7 Important

**Measure 7. Open-ended Experience Question Coding Grid (Post-Survey)**
Participant:
In a sentence or two, describe your experience. _______________________________________

**Measure 8. CASC Scale – Anger (Post-Survey)**
Please rate the FEELINGS that you experienced while playing this game. That is, complete the sentence “I felt the emotion ___ while playing this game.”

Anger Not at all 1 2 3 4 5 6 7 Very Much
Hate Not at all 1 2 3 4 5 6 7 Very Much
Excitement Not at all 1 2 3 4 5 6 7 Very Much
Annoyance Not at all 1 2 3 4 5 6 7 Very Much
Motivation Not at all 1 2 3 4 5 6 7 Very Much
Frustration Not at all 1 2 3 4 5 6 7 Very Much

**Measure 9. CASC Scale – Shame (Post-Survey)**
Please rate the FEELINGS that you experienced while playing this game. That is, complete the sentence “I felt the emotion ___ while playing this game.”
Confidence*  Not at all  1  2  3  4  5  6  7  Very Much
Shame*     Not at all  1  2  3  4  5  6  7  Very Much
Embarrassment*  Not at all  1  2  3  4  5  6  7  Very Much
Pride*       Not at all  1  2  3  4  5  6  7  Very Much

Measure 10. Motivation to Perform (Pre-Survey)
*Response Options: Strongly Disagree, Disagree, Somewhat Disagree, Unsure/Neutral, Somewhat Agree, Agree, Strongly Agree
  1. My desire to play this game is high.
  2. I am motivated to play this game.
  3. My motivation to win at this game is very high.
  4. I want to do well at this game when I play.

Measure 11. Motivation to Perform (Post-Survey)
*Response Options: Strongly Disagree, Disagree, Somewhat Disagree, Unsure/Neutral, Somewhat Agree, Agree, Strongly Agree
Throughout playing this game…
  1. My desire to play this game was high.
  2. I was motivated to play this game.
  3. My motivation to win at this game was very high.
  4. I wanted to do well at this game when I was playing.

Measure 12. Performance Expectancy (Pre-Survey)
*Response Options: Strongly Disagree, Disagree, Somewhat Disagree, Unsure/Neutral, Somewhat Agree, Agree, Strongly Agree
  1. I expect to perform well when I play this game.
  2. I am confident that I will play this game to the best of my ability.
  3. I believe that I will play this game better than my opponent.
  4. I have no doubts that I will perform fine when playing this game.
  5. My game performance will surpass my opponent’s.
  6. I feel as though I will beat my opponent.

Measure 13. Performance Expectancy II (Pre-Survey)
Rate how you expect to performance in the game on a scale of one to seven, with one being the worst and seven being the best.
1  2  3  4  5  6  7

Measure 14. Performance (Post-Survey)
*Response Options: Strongly Disagree, Disagree, Somewhat Disagree, Unsure/Neutral, Somewhat Agree, Agree, Strongly Agree
  1. I performed well when playing this game.
  2. I am confident that I played this game to the best of my ability.
  3. I believe that I played this game better than my opponent.
  4. I have no doubt that I performed fine while playing this game.
  5. My game performance surpassed my opponent’s.
6. I feel as though I beat my opponent.

**Measure 15. Performance II (Post-Survey)**
Rate your performance in the game on a scale of one to seven, with one being the worst and seven being the best.

1 2 3 4 5 6 7

**Measure 16. Immersion (Post-Survey)**
1. How much did it seem as if you could reach out and touch the objects or people you saw/heard?
2. To what extent did you experience a sense of 'being there' inside the environment you saw/heard?
3. To what extent did it seem that sounds came from specific, different locations?
4. How often did you want to or try to touch something you saw/heard?
5. Did the experience seem more like looking at the events/people on a movie screen or more like looking at the events/people through a window?
6. How often did you make a sound out loud (e.g., laugh, speak) in response to someone you saw/heard in the video game environment?
7. How often did you smile in response to someone you saw/heard in the game environment?
8. How often did you want to or did you speak to a person you saw/heard in the game environment?
9. To what extent did you feel mentally immersed in the experience?
10. How involving was the video gameplay experience?
11. How completely were your senses engaged?

**Measure 17. Distraction (Post-Survey)**
*Response Options: Strongly Disagree, Disagree, Somewhat Disagree, Unsure/Neutral, Somewhat Agree, Agree, Strongly Agree*
1. I could easily imagine myself in the game while playing. (reverse)
2. I was aware of activity going on in the room while playing.
3. I was focused on playing the game. (reverse)
4. I experienced a sense of "being there" in the game. (reverse)
5. The things going on around me took me out of the game.
6. I was really immersed in the game playing experience. (reverse)
7. I was distracted by what was going on around me while playing.
8. I was mentally involved in the game while playing. (reverse)
9. I felt like I was "in the zone" when playing this game. (reverse)

**Measure 18. Verbal Insults (Post-Survey)**
*Response Options: Strongly Disagree, Disagree, Somewhat Disagree, Unsure/Neutral, Somewhat Agree, Agree, Strongly Agree*
1. The things said to me while I was playing the game were mean.
2. Very offensive remarks were made to me while I was playing.
3. Comments I heard were very aggressive.
4. I felt personally insulted by some of the things said to me while I was playing.
5. There were verbally aggressive remarks made to me during the gaming session.
Appendix E: Lab Measures

Form 1. Lab Tech Observation Sheet

<table>
<thead>
<tr>
<th>Case Number</th>
<th>Lab Tech</th>
<th>Opponent (Confederate)</th>
<th>Condition</th>
<th>Contestant</th>
<th>Final Race Standing</th>
</tr>
</thead>
</table>

0 = Control, 1 = Treatment

The participant interacted with the confederate when playing.

<table>
<thead>
<tr>
<th>Never 1</th>
<th>Once or twice 2</th>
<th>Occasionally 3</th>
<th>Half the time 4</th>
<th>A lot 5</th>
<th>Most of the time 6</th>
<th>The whole time 7</th>
</tr>
</thead>
</table>

The participant trash talked to the confederate during the game.

<table>
<thead>
<tr>
<th>Never 1</th>
<th>Once or twice 2</th>
<th>Occasionally 3</th>
<th>Half the time 4</th>
<th>A lot 5</th>
<th>Most of the time 6</th>
<th>The whole time 7</th>
</tr>
</thead>
</table>

Describe anything unusual that occurred during the game session. Be sure to note if you needed to stop the study for any reason.

__________________________________________________________________

__________________________________________________________________

__________________________________________________________________

__________________________________________________________________

Lab Techs, please also be sure to indicate if:

- You or the confederate knew the participant
- The participant did not seem to understand what is going on (e.g. language barriers)
- The participants said they figured out the confederate was working with the study
- The confederate deviated significantly from the script for whatever reason