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Verbal and nonverbal mitigating communication on information processing and anger

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VERBAL AND NONVERBAL MITIGATING
COMMUNICATION ON INFORMATION
PROCESSING AND ANGER

by

Rebecca L. Thomas

Bachelor of Science
University of Nevada, Las Vegas
2004

A thesis submitted in partial fulfillment
of the requirements for the

**Master of Arts Degree in Psychology
Department of Psychology
College of Liberal Arts**

**Graduate College
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ABSTRACT

Verbal and Non verbal Mitigating Communication on Information Processing and Anger

by

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Frustration, anger, and aggression have been linked in the literature. Studies have shown that participants are capable of using verbal and nonverbal communication to display and interpret emotions. One interesting communication phenomena is mitigating information, this would include an apology or an explanation. The fundamental attribution error posits that people attribute an individual's behavior to dispositional characteristics more often than situational components. In the current study participants were undergraduate psychology students recruited for a study investigating social interaction. Participants engaged in a frustrating interaction and encountered one of four communication conditions. These included verbal or nonverbal communication, with and without mitigating information. It was found that communication and mitigation influenced attribution. Frustration was correlated to anger, and more anger was reported in the verbal nonmitigating condition. Internal attribution was reported in nonverbal nonmitigating and verbal mitigating conditions. Furthermore, external attribution was reported in verbal communication. Conclusions and implications are discussed.

TABLE OF CONTENTS

ABSTRACT.....	iii
CHAPTER 1 INTRODUCTION	1
Anger and Aggression.....	2
Frustration, Anger, and Aggression	2
Communication.....	4
Nonverbal Communication.....	5
Verbal Communication.....	8
Communication and Mitigating Circumstances.....	9
Information Processing	11
Hypotheses	16
CHAPTER 2 METHODOLOGY	17
Participants.....	17
Materials	17
Design and Procedure	17
CHAPTER 3 RESULTS	23
Analysis of Data and Findings.....	23
CHAPTER 4 DISCUSSION.....	27
Frustration and Anger	27
Internal Disposition Attribution.....	29
External Situational Attribution.....	31
Conclusion	34
Limitations and Future Research	37
CHAPTER 5 FIGURES.....	40
Hypothesis 1.....	41
Hypothesis 2.....	41
Hypothesis 3.....	42
APPENDIX I	45
APPENDIX II	47
APPENDIX III.....	54
REFERENCES	57

VITA.....	61

CHAPTER 1

VERBAL AND NONVERBAL MITIGATING COMMUNICATION ON INFORMATION PROCESSING AND ANGER

Frustration and anger have been well investigated in the literature (Berkowitz, 1989, Berkowitz, & Harmon, 2004). Many studies have determined that frustration, anger, and aggression are related, such that an increase in one is associated with an increase the other. In addition, there is evidence indicating that people may become more aggressive in a frustrating situation, specifically, when anger is primed (Betsch et al., 1999). The role of communication with these previously mentioned variables is not as clear. It has been established that humans are capable of determining a wide array of emotions, including anger, in both verbal and nonverbal capacities. Verbal communication has been investigated in mitigating circumstances. Mitigation includes the view that when given an apology, people are more likely to rate the offender of the negative action as more positive and report less aggressive affect as compared to when no apology is given (Ohbuchi, 1989). The role of nonverbal communication as a mitigating factor, however, has yet to be investigated. Furthermore, the role of attribution in verbal versus nonverbal communication has not been established. According to the fundamental attribution error, people are more likely to attribute the behavior of others to their

dispositional characteristics rather than situational components. When given information such as verbal and nonverbal communication, are individuals less likely to display the fundamental attribution error? In addition, how will reported levels of anger be affected when individuals are given mitigating information, such as an apology? This study will investigate the role of mitigating information and communication on attribution and anger in a frustrating situation.

Anger and Aggression

Anger and aggression are two heavily researched topics in social psychology. Several researchers have found these two concepts to be positively correlated such that more anger reported by participants is associated with increased levels of aggression (Sebastian, Buttino, Burzynski, and Moore, 1981; and Russell and Arms, 1995). In addition, anger and aggression have been found to be highly correlated with the likelihood of participating in the advancement of a hostile act. Hostility is not only detrimental to the receiver of the act, but to the perpetrator as well. An extension of physical aggression is the negative health consequences which may arise from chronic aggressive affect. Johnson (1990) established a link between harmful emotions such as anger, aggression, and hostility with poor health outcomes. These outcomes include heart disease, ulcers, cancer, and hypertension. The awareness of these negative outcomes gives further credence to the investigation of anger. Several studies have been conducted with the intention of determining the causes and correlates of anger. These include situational circumstances, motivational reasons, culture, and physical pain (Ohbuchi, Kumagai, and Atsumi, 2002; Scherer, 2001; Hatch et al. 1992). Another aspect that has been investigated is the role of frustration in the aforementioned variables.

Frustration, Anger, and Aggression

Frustration has been linked to anger when an obstruction of motivationally relevant goals has been observed. In order for angry affect to occur the situation must be understood and personally important. In other words, there must be a goal that is blocked and others may be blamed (Berkowitz, & Harmon, 2004; Frijda, 1993, Smith and Lazarus, 1990). In many circumstances, the blockage of this personally relevant goal can be viewed as either legitimate or illegitimate (unfair). Weiss, Suckow, and Cropanzano (1999) investigated the effect of unfairness of a particular outcome on reported levels of anger. As the amount of unfairness increased so did the level of anger. It is important to maintain the distinct difference between anger and aggression. Anger is an affect, an emotion, while aggression is a destructive or hostile behavior. Frustration has been studied with aggression as well as with anger.

Dollard et al. (1939) were some of the first researchers to investigate the effects of frustration on aggression. They found that the obstruction of an expected reward created increased levels of aggression. More recently Leonard Berkowitz and his colleagues (Berkowitz, 1989, Berkowitz, & Harmon, 2004) have modified this theory. In general it is accepted that the blockage of some personally relevant goal leads to frustration, which in turn may lead to anger and/or aggression.

The type of frustration required to elicit an anger response may not need to be a goal of long standing personal relevance. Roseman (1991) investigated appraisals involving emotions and concluded that transient rewards or fleeting punishments can produce anger arousing affect. Obstructions to a goal determined to be purposeful created more anger than situations in which they were deemed accidental, even in temporary

situations of reward and punishment. This study adds to the validity of inducing frustration and anger in a laboratory setting.

There is evidence indicating that people may become more aggressive in a frustrating situation, specifically, when anger is primed in comparison to fear. Tilman Betsch (1999) studied the concept of hostile aggression with university students. Hostile aggression was measured by participants' reactions when confronted with a scenario involving a frustrating event. Either anger or fear related cognitions were activated. Results indicate that in the anger priming condition, hostile goals (i.e. aggression) were more likely to be reported. This suggests that frustration, anger, and aggression are associated. It is assumed that in a frustrating situation, levels of anger will increase. As reported previously, as anger increases so does the amount of aggression displayed. There are other reasons for the onset of anger and in turn aggression. One interesting aspect is the role of communication.

Communication

Communication is an essential part of human existence, and research suggests that there are innate mechanisms in the development of human language (Chomsky, 1968; Vorster, 1979; Green & Vervaeke, 1997). This suggests that the importance of communication in human life is so monumental that aspects of language acquisition have evolved to facilitate universal grammar. Communication within and among human culture is an integral part to the survival of the human species, and is a certified necessity in past and modern society. The information transmitted through communication is complex and there are several ways in which humans communicate. Humans are capable of interpreting not only mundane information, but information that expresses a wide array

of affect, feeling, and behavior. Two such capacities are verbal and nonverbal communication.

Gun Semin (1998) suggests that verbal information is more easily understood than nonverbal information. The author also mentions that due to the immediate nature of verbal communication, individuals are less capable of interpreting nonverbal information as compared to verbal. Verbal and nonverbal aspects of mitigating information are a key feature to the current study. There is an extensive amount of literature examining mitigating information in a verbal context. There is not, however, literature on nonverbal mitigating information that is pertinent to the scope of this study. To demonstrate the fact that people are capable of interpreting nonverbal communication quite consistently, the aspect of affect, emotion, and interpretation will be discussed further. Verbal and nonverbal communications have been examined in the area of emotions such as anger, disgust, fear, sadness, happiness, and surprise. Anger is an especially relevant emotion in the current study.

Nonverbal Communication

When interpreting aggressive intent, facial expression is an imperative part of the process. Humans are able to decipher many emotions through the examination of nonverbal illustration. To convey the importance of facial expression interpretation, Gernot Horstmann (2003) studied facial expression with the display of emotion. Emotion theorists presume that individuals use a variety of facial expressions to display information about their emotional state. In contrast, behavioral ecologists assert that the uses of facial displays are demonstrated as the intention of their behavior or to request an action. Participants were presented with facial expressions and asked to interpret what

was implied by the demonstrator. Most of the participants chose affect as the message of facial expressions for disgust, fear, sadness, happiness, and surprise. Pertinent to the current study, however, only the anger facial display tended to be associated with behavioral intention or action requests. This demonstrates that emotions and behavior can be interpreted by facial expression. The compelling aspect to this study is that anger was the only expression in which a behavior was linked to the interpretation. Higher levels of interpretation are needed for the anger condition, demonstrating the unique possibility of misinterpreting anger and behavioral intentions. It is far less difficult and less threatening to misinterpret other facial expressions. There is also less consequence for incorrectly interpreting other expression as compared to anger. The misinterpretation of anger could lead to the escalation of a hostile act.

Facial expressions are innate, and can communicate the emotion that is contracted to be presented. In addition, an angered look may escalate a conflictive situation, partially due to the innate aspect of facial expression. Anger and hostility in facial expression has been shown to be intended to display a behavioral intention, and is interpreted innately to assess dangerous situations. Humans are able to display and interpret hostile situations. In addition, humans are capable of expressing many emotions through nonverbal communication.

There are many social situations which the average human will encounter on a recurring basis, some of which are more effortless to interpret than others. Fernández-Dols, Carrera, and Russell (2002) examined interpretations of social and nonsocial situations as they pertain to facial expressions. It was stated that “observers are remarkably consistent in attributing particular emotions to particular facial expressions.”

The authors hypothesized that using slightly different procedures in a facial recognition study would change the way in which participants attribute expression. This procedure was known for an emphasis on situational information. Participants were asked to judge whether an example of an emotional facial expression was more likely to be associated with a social situation in which communication with another person was involved or with an equivalent emotional expression but in a nonsocial situation. Every facial expression was more highly associated with the social situation as compared to the nonsocial situation. This effect was demonstrated on all emotions presented including happiness, fear, disgust, anger, and sadness across cultures. This demonstrates that humans use emotions and nonverbal actions to display affect on a wide spectrum of expressions. In addition, these findings indicate that social contact with another person will be interpreted as intentional and social, even for the anger expression. As interpreted by an observer, in no circumstance would someone display an emotion in a nonsocial manner. Facial expressions display the information that an individual wants to convey. If communication is misinterpreted or thwarted, the conflictive situation may escalate into a hostile circumstance for the individuals involved. One aspect that has not been examined is the use of apologies and other mitigating information in facial expression and other nonverbal behaviors.

The compulsory action to communicate through nonverbal facial expression has been established. This is an innate process in which humans are capable of displaying an emotion or affective state and, in turn, the observer is capable of deciphering this information and interpreting it to the best of their abilities. Anger and hostility are unique in the manner in which their facial display is decoded. As with other emotions they are

used in social situations involving others, however, the display of anger or hostility is most often seen as a behavioral intention rather than an affective emotional state. The misinterpretation of an anger display may generate consequences that are harmful to the observer. In addition to nonverbal behavior, individuals may obtain information through verbal communication.

Verbal Communication

In addition to being good at interpreting facial cues, humans are inherently good at using vocal cues to understand other people and what expressions are being made. Klaus Scherer (1991) examined the congruity between vocal expression patterns in naturally occurring emotions and participants' interpretations of those expressions. Female and male professional radio actors depicted anger, sadness, joy, fear, and disgust based on practical scenarios of emotion-eliciting events. Overall, participants recognized all emotions very consistently. These findings demonstrate the remarkable accuracy with which humans are capable of interpreting vocal expression. When conveying emotions, vocal expression seems to be another innate aspect to language interpretation.

In addition to the recognition of emotions through vocal cues, Costanzo (1992) extended the literature further and found females are able to decode verbal and nonverbal cues more accurately than males. Consistent with this finding, it was also mentioned that females have been found to be better communicators in general. This suggests that gender differences may be present when communicating. In addition, Hall, Carter, and Horgan (2000) concluded there are gender differences in communication. Specifically, women were found to be more accurate than men on interpreting expressions of nonverbal communication. Tannen (1990) posits that there are gender differences in communication

style. She concluded that men tend to use communication to gain independence and avoid failure, while women tend to have better interpersonal communication and view conversation as a way to achieve closeness and agreement. More recent studies have tested these claims and determined that interpersonal communication differences between men and women are smaller than originally found (Oxley, Dzindolet, and Miller, 2002). Women may observe, interpret, and convey information differently than men. This ability to execute communication in general more successfully than men can be applied to anger communication. Women should become less angered than men in a communication situation due to the ability to interpret and express emotions both verbally and nonverbally. One aspect that has been examined is the use of information in communication, such as an apology, to mitigate levels of anger.

Communication and Mitigating Circumstances

There are mitigating circumstances involving anger and aggression. One study conducted by Ken-ichi Ohbuchi (1989) found that when given an apology, participants were more likely to rate the perpetrator of the negative action as more positive and report less aggressive affect as compared to when no apology was given. In a frustrating situation, anger may be felt by an individual. The observer may be able to lessen the potentially hostile emotions by giving an anger reducing cue. One very reliable anger reducing cue is an apology. Verbal communication is needed in this situation to mitigate anger.

Ferguson and Rule (1983) found that when given an explanation for a particular anger arousing incident, participants reported less anger towards the perpetrator as compared to when no explanation was given. In addition, individuals also felt that the

perpetrator had less malevolent intent during the incident when given an explanation. This indicates that when communication and information of the circumstance is given, people feel less angered. This mitigating circumstance is particularly helpful in a communication situation. Verbal communication is once again needed to lessen the hostility of the person on the receiving end of the anger arousing incident. When there is no verbal outlet for communication, a mitigating situation may not be feasible and anger will remain, and in turn, aggression will increase. One other way to increase aggression is the use of provocation. Provocation has the opposite effect of mitigating information and may increase levels of hostility.

Provocation, reciprocity, and lack of aggressive intent were found as mitigating circumstances in familial aggression. Martin and Ross (1996) found a child believed they deserved less punishment when provoked by a sibling as compared to when not provoked, even if the aggression was more severe. This indicates that provocation can justify the hostile act. These results indicate that mitigating circumstances can lessen or conversely, intensify aggression. Specifically, if one feels that they were provoked by another person; more aggression may be displayed even if the provocation was unintentional. Verbal and nonverbal communication of intent can mitigate the situation by clarifying provocation if necessary. When no communication is available, intention and provocation are determined by the interpretation of the receiver. This interpretation may be inaccurate and aggression or a hostile act may be a precedent to this situation.

Verbal and nonverbal aspects of mitigating information are a key feature to the current study. There is an extensive amount of literature examining mitigating information in a verbal context, all of which cannot be discussed due to the scope of this

study. It has been discussed that information can increase or decrease the amount of anger and aggression felt toward the perpetrator. There is not, however, literature on nonverbal mitigating information that is pertinent to the capacity of this study. To investigate how mitigating communication is processed in the interpretation of an individual's behavior, the attribution process will be examined.

Information Processing

Information processing is the method by which individuals attend to, encode, and interpret social information. One classic theory in social information processing is the fundamental attribution error (Ross, 1977). This theory posits that in a social situation, individuals are more likely to attribute the actions of a person to their dispositional qualities rather than the situational factors. According to Eliot Smith (1995), the concept of attribution has two meanings. The first refers to the inferences made of the target individual's behavior, specifically focusing on that person's disposition, or internal characteristics. The second meaning is the use of observable situations in the environment to infer that certain circumstances in the world are stable. In many cases situations are extremely variable; therefore assessing an individual's disposition can decrease the effect of situational variability. In both meanings the interpretation of the situation and the disposition are inferred by a perceiver, and the entirety of the observable evidence may not be taken into consideration. There are several studies that have investigated ways in which to manipulate the attribution process.

Tetlock (1985) examined attribution through a manipulation of participant accountability. Participants were instructed to read an essay that either supported or opposed issues on Affirmative Action. In addition, participants were informed that the

writer either chose this position, or the position was assigned. Participants either were or were not made aware that they would justify their causal interpretation of another's behavior. When no justification of interpretation was required participants attributed essay consistent attitudes to the writer, even when given information that the essay was a forced task. Situational circumstances were taken in to account more when participants were aware that they would be held accountable for their interpretation. Accountability decreased the effect of the fundamental attribution bias. This study demonstrates that information and manipulation in an experiment can change the outcome of information processing, and in turn attribution. Researchers have yet to examine the attribution process when verbal and nonverbal mitigating information is given after the perpetration.

The attribution of affect towards another person has been manipulated by researchers of the fundamental attribution error. Hansen, Kimble, and Biers (2001) investigated the impact of instructed friendliness on subsequent feelings of liking towards another person. Participants were instructed to act as either friendly or unfriendly to another participant, who unbeknownst to them was a confederate. Participants who interacted with the friendly confederate felt as though they could become friends with that person more so than the participants who interacted with the unfriendly confederate. This demonstrates that internal dispositions were used to determine the behavior of the other participant. Furthermore, consistent with the fundamental attribution error, participants were more likely to attribute dispositional characteristics to the confederate's behavior and situational characteristics to their own. This study is particularly relevant because it demonstrates the inherent capability to change the emotions felt towards another person via the attribution process. By manipulating the way in which information

is processed, researchers are capable of manipulating the attribution process, and in turn the sentiment felt toward other individuals in a social situation. This study clearly manipulates friendliness and liking, which are categorized as positive affect. Other studies have investigated negative affect. One such study demonstrated that retaliation, a form of aggression, may be effected by mitigation and the attribution process.

Kremer and Stephens (1983) manipulated time of mitigation (immediate or late) and number of provocations (one or several). It was found that mitigation given directly after a provocation decreased retaliation when not followed by subsequent provocations. This effect was not found for late mitigation. This demonstrates the importance of the timing of mitigation, that in order to be successful, information is needed immediately after an incident. Kremer and Stephens also found that attribution moderated the effect of retaliation. The authors state that retaliation may be effected by mitigation through an attribution process. This suggests that there may be an underlying causal model of affect and attribution.

To further determine the causal model of behavior interpretation, Weiner (1995) developed a three step process to behavioral response and attribution. To do this, he examined student reactions to responses made by a teacher who had a student in the class who performed poorly on an exam. Participants were informed that the teacher either felt angry or sympathetic toward the student. It was found that attribution of responsibility effected student's perception of teacher affect. Specifically, according to the views of the participants, the student should be held responsible for the poor exam grade when lack of effort was the cause, but not when of lack of aptitude was given as the cause. In this

study, when information was given it changed the views of attribution. Responsibility was used as mitigating information.

According to the theory proposed by Weiner, the first step in the model is causal ascription. When examining an adverse situation, this would include attribution of responsibility of a negative event. The second part is known as affective reaction. In a negative situation this would be internalized as anger. The last step is the behavioral response, which in many cases is either aggression or some other antisocial response. This specific study conducted by Weiner gives further credence to the order of the variables proposed in the current study, which includes frustration, mitigating information, attribution, anger, and aggression.

As previously mentioned anger and aggression can be affected by the attribution process. One analogy may exist when determining the cause of a swerving driver. For the scope of the current study there are two cognitive routes that may be followed. In the first situation, drivers are likely to be less angered by swerving after determining that an object in the road was the cause of the poor driving. Individuals may use situational factors in making their judgment about a swerving driver. If no reason for the swerving is apparent, then the cause may be that the other person is a bad driver, and is endangering people. These individuals may use dispositional characteristics to make their judgment about a swerving driver. It is likely that more anger would be reported towards the driver that is responsible for the poor driving than the driver who had a legitimate reason for swerving. There are still other aspects that may affect reported levels of anger and behavioral displays. Fischer (2001) reviewed several articles and concluded that the tendency for men to be more aggressive than females is not due to concern for females,

but rather to the fear of losing status and respect in the eyes of other men. For this reason, gender differences may be expected in terms of reported anger and aggression.

Verbal and nonverbal communications are important to human behavior and emotion. Individuals are capable of decoding and displaying facial expressions. Facial expressions display the information that the person wants to convey. If communication is misinterpreted or thwarted, the conflictive situation may escalate in to a hostile circumstance. Researchers have yet to investigate the role of nonverbal mitigating information on affective and behavioral outcomes. Humans communicate through the verbal use of language as well as nonverbal behaviors. Individuals are remarkably accurate at distinguishing between all emotions expressed through verbal communication. There are situations in which mitigating circumstances may attenuate or intensify the amount of anger felt and aggression displayed. In an anger inducing situation, the perpetrator is able to lessen the hostile emotions felt by the receiver by giving an anger reducing cue. Examples of such a cue are an apology or an explanation. Another example is provocation, specifically if one feels that they were provoked by another person; more aggression may be displayed especially if the provocation was intentional. Verbal communication is needed in these situations to mitigate anger and possibly an aggressive or hostile act. Nonverbal mitigating information has not been established in the literature. Previously it was also mentioned that frustration and anger are associated. It has been determined that in a frustrating situation, levels of anger increase. In addition, as anger increases the amount of aggression displayed may increase. Men are more aggressive than women, and are less successful when interpreting nonverbal and verbal communication. When communication is misinterpreted or not given, anger and

aggression may be a reaction. According to attribution theory, people are more likely to assess situational components, instead of dispositional characteristics, when given information. This in turn may decrease levels of anger and aggression. Researchers have yet to investigate the role of mitigating information on the attribution process in this context. This study aims to examine the effects of verbal and nonverbal mitigating communication on information processing of the attribution process and anger. This study has several hypotheses.

1. There will be less anger reported toward the confederate when mitigating information is given.
2. There will be less anger reported toward the confederate in the verbal condition as compared to the nonverbal condition.
3. Attribution will be effected by communication. Specifically, situational components will be reported as the cause of the confederate's behavior more often in the mitigating conditions of both verbal and nonverbal communication. Dispositional characteristics will be reported as the cause of the confederate's behavior when no information is given.
4. The male same sex dyads will report more anger than the female dyads.

CHAPTER 2

METHODOLOGY

Participants

This study involved human subjects and was approved by the IRB of the University of Nevada, Las Vegas. Participants were recruited for a study examining interactions in a social situation from the psychology subject pool. Participants consisted of forty males and forty females. Participation was voluntary and each individual received one research credit in partial fulfillment of the requirement of an introductory psychology course.

Materials

Paper materials for the experimenter and the confederate consisted of predetermined questions (appendix I), and a script (appendix II). Paper materials that were given to the participant consisted of a consent form, and a questionnaire (appendix III). The questionnaire was given to the experimenter once the participant completed all necessary writing.

Materials not involving paper included objects associated with the social interaction. This included a depiction of a roadway, two toy cars, and a table.

Design and Procedure

A 2 (communication) X 2 (mitigation) X 2 (gender) analysis of variance was used to analyze data. The participant waited in the hall corridor with a confederate of the same sex and was told to enter the lab by the experimenter. The confederate arrived before the participant and talked minimally while waiting to be called. The participant and the confederate were told that they were participating in a study in which they will answer several questions one at a time in order to advance their position in the sequence. At this time they were told whether they had a limit on communication. For those participants in the verbal condition, all conversation was allowed. For those participants in the nonverbal condition, they were instructed not to speak to each other, and no other requirements were given. Participants were told that they had the opportunity to win a cash prize if the game was successfully completed. In addition, the experimenter would be keeping track of individual scores, adding personal relevance. The same sex dyads were fictitiously told that the confederate was the first to sign up and would be the first to answer the question. Participants were told they could leave the experiment once they have answered their own individual questions correctly and completed the follow-up questionnaire. It was indicated that most participants are able to successfully answer the questions and fill out the questionnaire within twenty minutes, so they will be able to leave as early as they complete the task.

The questions were an easy level (see appendix I). This ensured that the sequence would go as planned with the participant answering most questions correctly. Back-up questions were prepared in the event that the participant answered a question incorrectly. A miniaturized version of a city street with roadway was on a table in the laboratory. The

participant and the confederate were given the choice between two toy cars and asked to place their car at the starting line. The participant was given first choice because the confederate was the first to answer the questions. The rules of the game were explained, including the fact there was only one roadway and no opportunity to pass the other participant. This demonstrated that the confederate was blocking a personally relevant goal of the participant. It was assumed that the prospect of leaving early with full credit, a monetary prize, choice of car, and the information that any average two people could complete the task, was sufficient motivation to perform well on the task and maintain personal relevance.

Once a question was correctly answered, the individual moved their piece one space forward. There was only one path, and no opportunity to pass the other participant, so the person who answered the first question correctly (the confederate) was ahead of the other participant. In this sequence, the advancement of the pieces was dependent on the correct answer of the confederate. The person who answered the second question (the participant) was unable to move their piece until both individuals answered the question correctly. Thus the confederate was blocking the path of the participant. This blocking situation was designed to be similar to a driving situation.

The confederate answered the first question successfully, indicating that they were competent and similar to the average person. In most cases the participant answered the next question correctly, at which time both individuals moved their piece forward one step. There were several back-up questions prepared for the experimenter in the event that the participant missed a question.

After the participant had answered the question correctly (end of round one) and was in line behind the confederate on the roadway, the confederate was given another question. In this second round the confederate and the participant then answered the questions correctly again, and observed the forward movement of the cars. This familiarized the participant with the sequence, so there was no confusion on the fact that the advancement of their piece was contingent on the correct answer of the confederate. In the third round the confederate answered the question incorrectly, thus inhibiting the advancement of the participant. Neither piece moved forward, even if the participant answered the question correctly. The participant was given a question regardless of whether the confederate answered it correctly or incorrectly.

At the point of an incorrect answer, the participant was given one of 4 circumstances involving communication condition. The participant observed the confederate turning towards them and gave them:

1. Verbal communication mitigating: e. g.: sorry, I can't believe I missed that, I am just really tired.
2. Verbal communication nonmitigating: e. g.: ok, I see, fine
3. Nonverbal communication mitigating: a look analogous to verbal communication.

This included eye contact, raising of the eyebrows, shoulder shrug, and hand movements indicating an apology. These expressions, along with others such as happiness, sadness, neutral, and excitement, were pre-tested on a group of different participants. They viewed a live individual depicting various nonverbal communications and indicated what the intended expression was conveying. A

clear consensus of nonverbal apology was reached. All confederates will be trained to perform these actions

4. Nonverbal communication nonmitigating: shoulder shrug

The confederate incorrectly answered the first question in the third round.

Communication condition was given directly after the question was missed, and it was indicated by the experimenter that neither participant was able to move their piece forward due to the fact that the confederate was blocking the forward movement of the participant. Berkowitz (1981) found that in a motor task, when participants were made aware that they were not going to obtain a fictitious cash prize due to the other participant (confederate), the anger and aggression elicited in this situation was directed towards the other participant. Conversely, when participants were told that this negative situation was occurring due to a mechanical malfunction, there was almost no anger or aggression directed towards the other participant. The participants were aware that they were unable to leave early and obtain a cash prize due to the other participant, and not any other outside factor.

During the third round, the confederate answered the second question correctly and both pieces moved forward provided that the participant did the same. This established that the movement of the participant's piece was completely dependent on the confederate.

In the fourth round the confederate incorrectly answered five questions. This was the primary frustration stage. Directly after each missed question, communication channel was given. After several attempts at the questions, the experimenter stopped the project and asked them to fill out the questionnaires. The confederate was escorted out of the

room and the participant filled out the packet. They were told to answer all questions honestly, and bring the packet to the experimenter who would be waiting in the hall, when they are finished. The game was not completed in order to not dilute any of the expected frustration and anger.

Once the packet was completed the participant was given credit and debriefed. The experimenter asked the participant questions involving suspicion of the confederate to examine if the participant thought they were involved.

CHAPTER 3

RESULTS

Anger

Hypothesis 1 predicted that there would be less anger reported toward the confederate when mitigating information was given. In addition, hypothesis 2 stated there would be less anger reported toward the confederate in the verbal condition. Seven items from the questionnaire were combined to create the anger measure (Cronbach alpha = .92). A standard 2 (communication) X 2 (mitigation) X 2 (gender) analysis of variance (ANOVA) was used to investigate the effect of condition on anger. There was a trend towards a significant interaction between communication and mitigation, $F(1, 75) = 1.714, p = .194$, eta squared = .044. Figure 1 displays the results of the interaction, incorporating hypotheses 1 and 2. Simple effects indicated the verbal nonmitigating condition produced a trend toward higher levels of reported anger compared to verbal mitigating, $F(1, 75), p < .01$, and nonverbal mitigating, $F(1, 75) = 4.22, p < .044$. Main effects of communication and mitigation were expected, however, interactive effects were found. In addition, results indicated that reported levels of anger did not relate to aggression, $F(1, 49) = .326, p > .05$.

Internal Attribution

Hypothesis 3 indicated attribution would be affected by communication and mitigation. Specifically, dispositional characteristics would be reported as the cause of the confederate's behavior when no mitigating information was given. Two items from the questionnaire were combined to create the internal attribution measure (Cronbach alpha = .58). As was conducted previously, a 2 (communication) X 2 (mitigation) X 2 (gender) analysis of variance (ANOVA) was used to analyze the effect of condition on internal attribution. There was a significant interaction between mitigation and communication within internal attribution, $F(1, 72) = 11.32, p < .001$, eta squared = .137. Figure 2 displays this interaction and incorporates the first part of hypothesis 3. As predicted, simple effects showed that participants attributed the performance of the confederate to their internal dispositional characteristics in the nonverbal nonmitigating condition in contrast with the nonverbal mitigating condition, $F(1, 76) = 17.88, p < .0001$. These results partially support hypothesis 3. Conversely, internal attribution was displayed in the verbal mitigating condition and not in the verbal nonmitigating condition, $F(1, 72), p < .01$ (see Figure 3).

External Situation

Hypothesis 3 predicted situational components would be reported as the cause of the confederate's behavior more often in the mitigating conditions of both verbal and nonverbal communications. Eight items were combined to create the measure for internal attribution (Cronbach alpha = .40). Due to the low alpha level, an item level analysis was performed and determined one component that best represented the construct. A 2 (communication) X 2 (mitigation) X 2 (gender) analysis of variance (ANOVA) was

performed, and several unexpected results were found that do not necessarily run contrary to hypothesis 3. There was an unexpected main effect of communication in attribution of external situation. As shown in Figure 3, participants believed the situation was the problem in the nonverbal condition more often than in the verbal condition regardless of mitigation, $F(1, 72) = 9.32, p < .003$, eta squared = .036.

There was also a significant interaction between communication and gender, $F(1, 72) = 9.32, p < .003$. Figure 4 displays this interaction and incorporates the second part of hypothesis 3. Simple effects showed that males believed the situation was the problem in the nonverbal condition more so than in the verbal condition, $F(1, 72) = 37.26, p < .0001$; and in the nonverbal condition more than female participants, $F(1, 72) = 17.32, p < .0001$. Approaching significance was the finding that females blamed the situation more in the verbal condition compared to males, $F(1, 72) = 3.77, p < .056$. Table 2 summarizes the variables, attributions, and conditions.

Table 1 *Variables, Attributions, and Conditions*

Variable, Attribution	Condition
Anger	Verbal Nonmitigating
Internal Attribution	Nonverbal Nonmitigating
	Verbal Mitigating
External Attribution	Nonverbal
	Males - Nonverbal vs. Verbal
	Males - Nonverbal vs. Females
	Females - Verbal

Frustration

Five items were combined to create the measure of frustration (Cronbach = .43).

Due to the low alpha level, an item level analysis was performed and determined one component that best represented the construct. A correlation analysis indicated that frustration was related to anger, $r(72) = .366, p < .001$. In addition, frustration was correlated to all conditions, $r(72) = 1.0, p < .001$, eta squared = .044, means are indicated in Table 2.

Table 2 *Means and Standard Deviations for Frustration and Conditions*

Condition	Mean	Standard Deviation	N
Verbal Mitigating	1.6	1.2	20
Verbal Nonmitigating	2.1	2.1	20
Nonverbal Mitigating	2.4	2.0	20
Nonverbal Nonmitigating	1.6	1.2	20
Frustration	1.9	1.7	80
Anger	2.6	1.6	80

CHAPTER 4

DISCUSSION

Frustration and Anger

This study indicates that communication and mitigation affect attribution, and to a lesser extent anger. A correlation analysis found frustration was related to anger, which corresponds with past research. Particularly, frustration has been linked to anger when an obstruction of motivationally relevant goals has been observed (Berkowitz, & Harmon, 2004, Scherer, 2001). In the current study, hypothesis 1 predicted that there would be less anger reported toward the confederate when mitigating information was given. In addition, hypothesis 2 predicted that there would be less anger reported toward the confederate in the verbal condition. There was a trend towards more anger in the verbal nonmitigating condition as compared to verbal mitigating and nonverbal nonmitigating. This result does not support hypotheses 1 and 2, in that main effects of communication and mitigation were predicted; however, interactive effects were found.

Higher levels of anger may have been reported in the verbal nonmitigating condition because the confederate violated expected social norms. For example, in the verbal nonmitigating condition the participant and the confederate were allowed to speak freely. There was no mitigating information given in this condition. The confederate was blocking a personally relevant path of the participant. By doing so and not apologizing when capable, the confederate could have been seen as breaking social norms. The

confederate's lack of social responsibility could have further angered the participant. Cialdini, Kallgreen, and Reno (1991) indicate that there are two types of social norms. Descriptive norms define what is typically done in a certain situation, while injunctive norms define what is typically approved or disapproved of in a situation. The participant may have seen the lack of an available apology as breaking both these types of norms. The confederate's lack of adherence to social norms may have led to a less favorable viewpoint from the participant

Verbal and nonverbal aspects of mitigating information are key features of the current study. It was found that there was a trend towards more anger reported in the verbal nonmitigating condition, and less anger in the verbal mitigating condition. This indicates that when given a verbal apology, participants are less angry. This finding coincides with past research (Ferguson and Rule, 1983, Ken-ichi Ohbuchi, 1989) which has found that mitigating information decreases anger.

There was also less anger reported in the nonverbal nonmitigating condition as compared to verbal nonmitigating. To support the hypothesis, less anger should have been found in the nonverbal mitigating condition. This trend could have occurred due to misinterpretations of the nonverbal communication. The participant may have empathized with the confederate because they were in the same unfamiliar situation. Participants may not have been aware of, or may not have even encountered nonverbal nonmitigating information in their past experiences. This finding may indicate the importance of verbal communication in a social interaction.

In general, additive main effects were expected for hypotheses 1 and 2; however the results indicate interactive effects. There was significantly more anger reported in the

verbal nonmitigating condition. This was not predicted. Furthermore, there was no difference in mitigation between verbal and nonverbal, which does not support hypothesis 1. Concurrently, there was significantly more anger reported in the verbal nonmitigating condition compared to mitigating. This would support hypothesis 2, except for the result that nonverbal communication shows no trend in mitigation. In order to be supported, nonverbal communication would have to show decreased levels of anger in the nonmitigating compared to mitigating condition. For these reasons, hypothesis 2 is not supported.

Internal Disposition Attribution

Hypothesis 3 indicated attribution would be affected by communication and mitigation. Particularly, participants would report dispositional characteristics (internal attribution) as the cause of the confederate's behavior when no mitigating information was given. There was a significant interaction between mitigation and communication within internal attribution. As expected, results showed that participants attributed the performance of the confederate to their internal dispositional characteristics in the nonverbal nonmitigating condition compared to nonverbal mitigating. These results partially support hypothesis 3. In opposition to this hypothesis, internal attribution was also found in the verbal mitigating condition as compared to the verbal nonmitigating. These findings coincide with previous research on the fundamental attribution error (Ross, 1977). Specifically, the theory posits that in a social situation individuals are more likely to attribute the actions of a person to their dispositional qualities rather than to the situational factors. These results indicate that the error is quite strong, since it was viewed in mitigating *and* nonmitigating conditions.

The current study argues that there is a clear interaction between communication and mitigation involving internal attribution. This attribution was found in the nonverbal nonmitigating condition. In addition, internal attribution was found in the verbal mitigating condition. This may have occurred for several reasons. The nonverbal no mitigation condition is very similar to no communication in general. The fact that no mitigation was assigned to that condition is irrelevant. The main aspect the participants may have concentrated on was the lack of communication. Without communication they were given no information and therefore attributed the performance of the confederate to their internal dispositional characteristics. This is in accordance with hypothesis 3. Conversely, results also found that internal attribution was displayed in the verbal mitigating condition, in which the participant clearly heard apologies from the confederate explaining their behavior. The participant may have seen the apology as insincere, or viewed the explanation as empty and meaningless due to the repeated thwarting of goals. The discounting principle (Kelley, 1973) states that as the number of possible causes for an event increases, an individual's confidence should decrease regarding whether or not a particular cause is true. The confederate was instructed to give an apology or an explanation to the participant after each missed question. For each mitigating piece of information, the participant's confidence that the mitigation was true may have decreased. Therefore, the verbal mitigating condition was the best chance to give mitigation. The act of repeated, immediate mitigation meant the participant may have been less likely to view that mitigation as being true. Using one type of mitigation may have prevented this occurrence.

The participant may have used a social comparison theory (Festinger, 1954) to examine their performance against that of the confederate. The situation was designed so that all participants performed better than the confederate. Due to the better performance of the participants, the apology may not have retained its value. A downward comparison of social comparison theory is one in which an individual examines their point of interest, in this case the performance on the task, in relation to someone worse than themselves. Wheeler and Miyake (1992) found that this comparison leads to better subjective well-being as compared to an upward comparison. This information may be extrapolated and applied to the findings of internal attribution. The confederate performed worse than the participants, and if the participants were comparing themselves to the confederate, they would most likely use a downward comparison. The apology or mitigation may not have mattered at that point because the participants were better off subjectively and knowing that they were doing better may have led them to attribute their feelings to internal disposition. In a sense, the participants may have felt the confederate was incompetent.

External Situational Attribution

The second part to hypothesis 3 involves situational attribution. Situational or external attribution would be used when no mitigating information was given. Results indicated an unexpected main effect of communication in attribution of external situation. Specifically, participants believed the situation was the problem in the nonverbal condition more often than in the verbal condition regardless of mitigation. This does not support hypothesis 3, but lends itself to some interesting findings. This indicates that verbal communication may not be more effective than nonverbal communication in

conveying a message about an explanation. The results indicate that nonverbal communication may be a valid way to express a feeling about a situation.

Further analysis showed that male participants believed that the situation was the problem in the nonverbal condition more so than in the verbal condition. Additionally, males believed that the situation was to blame in the nonverbal condition more so than females. This finding may indicate that there is a gender difference in communication and attribution, but not in anger. This finding does not support hypothesis 4. Male participants did not report more anger than female participants, but instead reported situational attribution in the nonverbal condition while females did not. This may suggest that males interpreted the nonverbal communication differently than females. Tannen (1990) posits that there are gender differences in communication style. As mentioned previously, men tend to use communication to gain independence and avoid failure. Women on the other hand, tend to view conversation and communication as a way to achieve closeness and agreement. The males might have attributed the nonverbal communication condition as prohibiting them from helping the group on the task. The male participants were unable to gain independence because their success in the task was completely dependent on the confederate. This inability may have been amplified in the nonverbal condition because no communication was given.

Males may have believed that if they were in a situation in which they could communicate openly with the confederate, the situation would have turned out differently. This could be due to social interactions between the participant and the confederate. For example, if the confederate performed poorly in the nonverbal condition,

the male participants may have attributed the outcome to the situation because of the fact that the participant could not help or work with him as a team or a group.

Another reason for these results may have been related to a flaw within the script. The confederate and participant were told they could not talk. The participant may have believed that if given the chance to speak, this would have led to more teamwork and to a better overall outcome. The participant may also have believed that there were other participants who were given the chance to speak in other conditions. In the future, researchers should state that this experiment involves no speaking from the onset of the interaction in the nonverbal condition. This finding once again indicates how important communication is in a social interaction.

One unexpected finding approaching significance was that females had a greater propensity to assign external attribution in the verbal condition than did males. A gender effect of communication and the attribution that follows may be presented in this finding, which runs contrary to what was reported by the male participants. To reiterate, males reported external attribution in the nonverbal condition, while females reported external attribution in the verbal condition. Females may have believed that the problem was situational because they were better able to interpret the thoughts and actions of the confederate. The communication in the verbal condition was more immediate and needed less interpretation. The female confederate was able to apologize and explain why her performance was poor. The male participants may not have viewed the male confederate's apology as sincere, or after several apologies the explanations were devalued. The male participants may have been unable to interpret the nonverbal

communication and therefore viewed the situation as an immediate explanation for the recent events.

This finding adds further credence to the work of Costanzo (1992), who found that females are able to decode verbal and nonverbal cues more accurately than males. Consistent with this finding, it was also mentioned that females have been found to be better communicators in general. This study also found that males believed that they performed better than they actually did, while females believed that they performed worse than they actually did. Costanzo posits that this difference in confidence may occur because of modesty and a lack of defensiveness in women. Women may observe, interpret, and convey information differently than men. This ability to execute communication more successfully than males was not found to apply to anger in the current study. It seems as though participants are better able to communicate verbally, thus attributing poor performance to the situation and not to internal disposition.

Conclusion

Contrary to hypotheses 1 and 2, the verbal nonmitigating condition observed a trend towards higher levels of reported anger than the nonverbal nonmitigating condition and the verbal mitigating condition. This result does not support the hypotheses since it was predicted that there would be less anger in the mitigating and verbal conditions only. This indicates that there may be a social phenomenon taking place in the verbal nonmitigating condition, such as a violation of social norms. Once again, two main effects were expected for hypotheses 1 and 2 such that less anger would be reported in the verbal and mitigating conditions, however, the results indicate interactive effects of these variables. These results do not seem to relate to attribution.

Hypothesis 3 predicted that internal attribution would be displayed more in the nonmitigating condition than the mitigating. The participants attributed the performance of the confederate to internal disposition. In the nonverbal condition, internal attribution was found in the nonmitigating condition. As discussed earlier, the nonverbal nonmitigating condition may have been viewed as lacking communication entirely. Without any information it seems logical to attribute the performance to the dispositional internal characteristics of the confederate.

In addition to internal attribution reported in the nonverbal nonmitigating condition, internal attribution was also reported within the verbal mitigating condition. At this point the participant may not have believed that the confederate was actually sorry or the fact that they were sorry did not make up for the poor performance. A social comparison theory may have been present in which after comparing themselves to the confederate, the confederate was clearly the one hindering the team.

The second part of hypothesis 3 involves situational attribution. It was predicted that situational or external attribution would be used when no mitigating information was given. There was an unexpected effect of communication; participants believed the situation was the problem in the nonverbal condition more often than in the verbal condition regardless of mitigation. This does not support hypothesis 3, but does coincide with one result from internal attribution; that internal attribution was displayed in the verbal mitigating condition. As was mentioned earlier when discussing this result, it was posited that the participant may have seen the apology as insincere, or viewed the explanation as empty and meaningless due to the repeated thwarting of goals. In accordance with the discounting principle, (Kelly, 1973) the participant may have not

believed the explanations. This would cause the participant to attribute the poor performance to the confederate's internal disposition. The opposite was found regarding external attribution; participants believed the situation was the problem in the nonverbal condition more often than in the verbal condition, regardless of mitigation. This could have occurred because the participants were given no information and in the nonverbal condition they may have felt as though they were in an unfavorable predicament. Participants may have also felt uncomfortable not talking in a social situation and felt empathy towards the confederate, therefore blaming the situation.

Males believed the situation was the problem in the nonverbal condition more so than in the verbal condition and believed the situation was the problem in the nonverbal condition more than females. This finding coincides with previous internal and external attribution results; internal attribution was made in the verbal mitigating condition. Males made external attributions during nonverbal conditions regardless of mitigation. To completely correspond with the internal attribution finding of the verbal mitigating condition, males would have needed to demonstrate external attribution at nonverbal nonmitigating, not just the main effect of nonverbal. This finding may indicate that there is a gender difference in communication and attribution, but not in anger. This is not supportive of hypothesis 4 because male participants did not report more anger than their female counterparts.

Males reported situational attribution in the nonverbal condition, consistent with the main effect. One reason for this mentioned previously is that the males may have seen the situation as a team interaction. An additional unexpected finding approaching significance was that females attributed the poor performance of the confederate to the

external situation in the verbal condition. This finding coincides with one previous discussion of internal attribution. Internal attribution was displayed in the verbal mitigation condition; when information was given, internal attribution was demonstrated. Females may have believed that the problem was external because they were better able to interpret the thoughts and actions of the confederate. The communication was more immediate and needed less interpretation. The male participants may have been less able to interpret the nonverbal communication, and for that reason viewed the situation as an immediate explanation for the recent events.

Limitations and Future Research

There are several limitations to this study. Due to the nature of the nonverbal communication, it is difficult to interpret the full attribution of the participants. For example: Did participants view the nonverbal communication as mitigation, or as some other gesture? Future studies could add several questions about the communication interpretation in the debriefing script.

In addition, it is difficult to measure anger and aggression on a paper and pencil based study. Participants may be less likely to rate how they actually thought the other participant performed due to social desirability. Real world applications or a driving simulator might better capture the emotions of this category. Participants might also be reluctant to express anger because they believed the confederate was filling out the same questionnaire as them. Individuals might not want to speak poorly of the performance of the confederate because they would not want the confederate to do the same to them.

Furthermore, it may have been the fault of the author not to address the specific effect of communication on attribution. It would be advantageous for future studies to

address interactions a priori. It seems logical that in a situation where an individual is given limited amounts of information due to the lack of communication added with one in which someone is blocking their personally relevant goal with no explanation, that they would most likely assume the person to be the problem. Due to the fact that all participants performed better than the confederate in the nonverbal nonmitigating condition, they would not see nor be given any excuse or explanation of why this person is unable to perform at the same level as they were performing. The participant may use a social comparison theory to address the poor performance.

In addition, participants may have actually felt like they were on a team with the confederate. Due to group affiliation they may have had reduced anger and skewed attribution. Participants may have viewed the confederate as a similar person and not wanted to rate the confederate poorly because that would give poor marks for their team of which the participant was a member. Researchers have found individuals inherently categorize themselves and others into groups. An in-group is one's own group, and an out-group is a group in which one is not affiliated. It has been found that individuals will display an in-group bias (favoring one's own group) with such little group division as flipping a coin (Tajfel, 1982; Wilder, 1981). In addition, individuals will favor their team in dividing any rewards. In the current study participants were told they were to work as a team, but could not give assistance with answering questions. At this point, an in-group may have been established. In addition, the participants were told they could win a monetary prize. Thus, the participants may have seen themselves as part of group, and therefore would report altered feelings towards the confederate.

There are several ways in which the study could be improved, as well as the prediction of the results. For example, due to the findings of this study researchers should predict interactions a priori. Furthermore, researchers should develop an interaction in which team awareness is not salient. Several theories help to explain the findings. Those theories include but are not limited to social comparison theory, social desirability, social norms, group awareness, and attribution.

CHAPTER 5

FIGURES

Figure 1. Trend towards a significant interaction between communication and mitigation at anger; hypotheses 1 and 2

Figure 2. Significant interaction between mitigation and communication within internal attribution; hypothesis 3

Figure 3. Main effect nonverbal communication within external attribution

Figure 4. Significant interaction between communication and gender within external attribution; hypothesis 3

APPENDIX I

PRE DETERMINED QUESTIONS WITH ANSWERS

1. How many pounds are in a ton? Answer: 2000
2. What is the study of living organisms? Answer: Biology
3. What planet is closest to the sun? Answer: Mercury
4. How many quarts are in a gallon? Answer: Four
5. How many strikes make an out in baseball? Answer: Three
6. Which two colors makes green when combined? Answer: Blue and Yellow
7. In which direction does the sun rise? Answer: East
8. In which country are the Great Pyramids? Answer: Egypt
9. What holiday is celebrated on February 14th? Answer: Valentine's Day
10. What is the home of a bee called? Answer: Hive
11. What day do children go trick or treating? Answer: October 31st
12. In what state is the Great Salt Lake? Answer: Utah
13. What instrument does a doctor use to take your temperature? Answer: Thermometer
14. Tiger Woods is famous for participating in what sport? Answer: Golf
15. In which month do Americans celebrate Thanksgiving? Answer: November
16. What actor played Ethan Hunt in Mission Impossible II? Answer: Tom Cruise
17. Which city is named the Windy City? Answer: Chicago

18. Who was the President of the United States before George W. Bush? Answer: Clinton
19. In the wizard of OZ, what color are Dorothy's slippers? Answer: Ruby
20. How many dwarfs are in the movie 'Snow White'? Answer: Seven
21. What two oceans border the United States? Answer: Pacific and Atlantic
22. What is the capital of the United States? Answer: Washington D. C.
23. What is the formula for water? Answer: H₂O
24. What is the UNLV mascot? Answer: Rebel

APPENDIX II

SCRIPT FOR EXPERIMENTER AND CONFEDERATE

The participant and the confederate are waiting in the hall. The experimenter opens the door to the lab. The experimenter has the consent form with them.

Experimenter: Hello my name is Rebecca and I am the experimenter for this project. You are now going to read this paper and sign them individually. Please read this and sign. *Looking and the participant.* Would you please follow me, you are going to sign in here. *Confederate follows Experimenter into the lab. Experimenter tells the Participant to enter the lab and gives them a copy of the consent form.*

Experimenter: Will you both please follow me. Ok, now we can get started. Our research team is interested in examining interactions in a social situation. In order to do this the two of you are going to be answering some trivia type questions and using this board. *Experimenter will point to the miniaturized version of a city street.*

Experimenter: Once the interaction is complete you will be instructed to fill out a short questionnaire. We are rewarding participants who do well as a team with a small cash prize; if you both make it to the end of the board you will be eligible to win twenty dollars each. I am going to be keeping track of your individual answers, but you can only win the prize if you both complete the task. Now we are going to talk about the specifics of the situation. This is how the interaction is going to work. You both will start at the

same place on the table. The participant who is chosen to begin will answer the first question. If they answer that correctly, they will move their car onto the roadway. We will take turns back and forth answering questions. The second person answering questions will be behind the first person. The second person cannot move forward unless the first person answers the question correctly. There is only one path on the roadway and there will be no opportunity to pass.

The experimenter will visually demonstrate how the cars will move.

Experimenter: You may move forward and once both participants have reached the end you will fill out the questionnaire. This has taken most participants of average intelligence no more than a few minutes to complete the interaction and then the questionnaire doesn't take much longer. You should be out of here in a short period of time. Most experiments are about an hour but we are going to give you full credit anyway. I flipped a coin earlier determining who will go first, and it was determined that you are the first to answer a question.

Experimenter will look at the confederate

Experimenter: Due to the fact that this participant will answer the question first, you can choose which car you would like to be.

The experimenter will point to the cars on the table and the participant will choose

Experimenter: From this point on you will be in charge of your car only and not allowed to touch the other person's car. *(For the NONVERBAL condition, no more talking will be specified, For the VERBAL condition, no instructions will be given).* Please stand next to your car and we will begin.

For the Red (color that is not chosen by the participant/confederate) Participant, the first question is: How many pounds are in a ton?

Confederate answers every question very slowly, especially ones that are missed

Confederate: I think something like 2,000

Experimenter: Yes, you are correct; please move your piece on to the board between the lines in the first position. Ok, now it is time for your first question Blue Participant.

Experimenter looks at the participant

Which planet is closest to the sun, mercury or mars?

Provided that the participant answers the question correctly:

Experimenter: Yes you are correct; please place your car behind the other participant's car

Now we can begin round two.

Your second question Red Participant is: How many quarts are in a gallon?

Confederate: I am pretty sure that there are four

Experimenter: Yes you are correct; please move your car up one space. Now we will move on to your second question.

In baseball, how many strikes make an out?

Provided that the participant answers the question correctly:

Experimenter: Yes, you are correct; please move your car behind the other car. You two are doing well so we will move on to the third round. Red Participant your next question is: What is the study of living organisms?

Confederate: I am going to say.....physics

Experimenter: No, that is incorrect. **Confederate gives communication depending on condition** The correct answer was biology. We are going to move on to the Blue

Participant. Your question is: In which direction does the sun rise, east or west?

Provided that the participant answers the question correctly:

Experimenter: Yes, that is correct. However you are unable to move forward because the Red Participant did not answer their question correctly and there are no opportunities to get around them. We will move on to the next round of questions. Red Participant your question is: Which two colors makes green when combined?

Confederate: I am going to say.....blue....and.....yellow

Experimenter: Yes, that is correct; you may move forward one spot. Now we are going to move onto the next question. Blue Participant your question is: What holiday is celebrated on February 14th ?

Provided that the participant answers the question correctly:

Experimenter: Yes, that is correct. You both answered the questions correctly so we can move onto round four. Is everyone ready? Ok, Red Participant your next question is: What is the home of a bee called?

-----Main Frustration Inducement Begins-----

Confederate: Well.....umm...I guess I am going to say.....a nest?

Experimenter: (1) No, that is not correct. The answer is a hive. You are not able to move forward. **Confederate gives communication depending on condition**

We are going to move on to the next question for the Blue Participant. Your question is: In which country are the Great Pyramids?

Provided that the participant answers the question correctly:

Experimenter: Yes you are correct. However, as we saw earlier you are not able to move forward due to the fact that the Red Participant answered their question incorrectly. We will now continue with the questions. Red Participant your question is: What instrument does a doctor use to take your temperature?

Confederate: I think I know this one. I am going to go with a stethoscope?

Experimenter: (2) No, actually that is incorrect. * *Confederate gives communication depending on condition** The instrument is known as a thermometer. We will continue on. At least you have some points accumulated. Blue Participant your next question is: In what state is the Great Salt Lake?

Provided that the participant answers the question correctly:

Experimenter: You are correct again. Unfortunately you must stay in your spot on the board. We will move on to the Red Participant again. Your question is: What actor played Ethan Hunt in Mission Impossible II?

Confederate: Is it Tom Cruise?

Experimenter: Yes, you are correct. You now have a chance to move forward, Blue Participant your question is: What day do children go trick or treating?

Provided that the participant answers the question correctly:

Experimenter: You are correct. Let's move on to the next question. Red Participant your question is: Which city is called the Windy City?

Confederate: San Francisco?

Experimenter: (3) No, that is not correct. **Confederate gives communication depending on condition** The answer is actually Chicago, in Illinois. We will keep the sequence

moving along, so Blue participant your question is: In which month do Americans celebrate Thanksgiving?

Provided that the participant answers the question correctly:

Experimenter: Yes, you are correct. You don't get to move forward because the other participant is in your path, so we will continue. Red Participant your next question is: What is the formula for water?

Confederate: I have no idea

Experimenter: (4) Ok, well the answer is H₂O. We are going to count that as an incorrect response. **Confederate gives communication depending on condition** Blue Participant, even though you are not moving forward, you are still being evaluated, so try your best to answer the question correctly. Your next question is: What two oceans border the United States, one on the east coast and one on the west coast?

Provided that the participant answers the question correctly:

Experimenter: You are correct, you are doing quite well. We will keep moving on to the next question. Red Participant your question is: Tiger Woods is famous for participating in this sport?

Confederate: I'm not sure, tennis?

Experimenter: (5) No that is incorrect, golf is the correct answer, and your team will be unable to move forward. **Confederate gives communication depending on condition** We are still going to ask the Blue Participant their question: Who was the President of the United States before George W. Bush, who is currently president?

Provided that the participant answers the question correctly:

Experimenter: Yes, once again you are correct, but are incapable of moving forward.

(after a long pause) I have made a decision to terminate the rest of the social interaction.

This doesn't seem to be working and it would be best to end it now. Most teams are able to get the end of the project, but this doesn't seem like it is going to happen here, and we are running out of questions. Neither of you are going to be eligible for the cash prize due to the incompleteness. *(Looking at the confederate)* Would you please follow me in to the hall and I am going to set you up with your questionnaire in a separate room. *(Looking at the participant)* You can just sit at this table and fill out the questionnaire and I will be in the hall if you have any questions. Please take your time. *The experimenter and the confederate leave the room.*

Back-up questions in the event that the participants answers a question incorrectly:

1. In the wizard of OZ, what color are Dorothy's slippers? Answer: Ruby
2. How many dwarfs are in the movie 'Snow White'? Answer: Seven
3. What is the capital of the United States? Answer: Washington D. C.
4. What is the UNLV mascot? Answer: Rebel

APPENDIX III

QUESTIONNAIRE

Please answer the following questions about your experience, 1 being the lowest value and 9 being the highest

The situation refers to: the game, the questions, the set up of the board, etc.

The other participant refers to: the other person in the situation, not including the experimenter

1. Please rate how well the other participant did

1   2   3   4   5   6   7   8   9

2. During the study did you feel anger?

1   2   3   4   5   6   7   8   9

3. During the study did you feel irritated?

1   2   3   4   5   6   7   8   9

4. During the study did you feel mad?

1   2   3   4   5   6   7   8   9

5. During the study did you feel annoyed?

1   2   3   4   5   6   7   8   9

6. During the study, were you angry at the other participant?

1   2   3   4   5   6   7   8   9

7. During the study, were you angry at the performance of the other participant?

1   2   3   4   5   6   7   8   9

8. Was the other participant making mistakes on purpose?

1   2   3   4   5   6   7   8   9

9. Could the other participant have done better, in your opinion?

1   2   3   4   5   6   7   8   9

10. How hard was the other participant trying?

	1	2	3	4	5	6	7	8	9
11. Was the other participant trying to annoy you?
	1	2	3	4	5	6	7	8	9
12. Do you believe the situation was too difficult for the other participant?
	1	2	3	4	5	6	7	8
13. How intelligent is the other participant?
	1	2	3	4	5	6	7	8	9
14. Do you believe the other person's ability caused the outcome?
	1	2	3	4	5	6	7	8	9
15. Did the situation seem to distract the other participant?
	1	2	3	4	5	6	7	8	9
16. Were the questions unfair to the other participant?
	1	2	3	4	5	6	7	8	9
17. Do you believe that if you had a better partner you could have done better?
	1	2	3	4	5	6	7	8	9
18. Would you want this person to be on your team in a different situation?
	1	2	3	4	5	6	7	8	9
19. Do you believe that if the situation was designed better you and your partner could have done better?
	1	2	3	4	5	6	7	8	9
20. In your opinion, the other participant was the problem more so than the situation.
	1	2	3	4	5	6	7	8	9
21. In your opinion, the situation was the problem more so than the other participant.
	1	2	3	4	5	6	7	8	9
22. Do you believe the situation had something to do with the outcome?
	1	2	3	4	5	6	7	8	9
23. In general, do you believe that the outcome of the situation was due to (circle one)?
the other participant	the situation
24. Do you feel the other participant should get credit for the efforts in the study (circle one)?

Definitely Yes	Definitely No
25. Did you enjoy this situation?
1	2	3	4	5	6	7	8	9
26. Were you frustrated with the other participant?
1	2	3	4	5	6	7	8	9
27. Were you frustrated by the game?
1	2	3	4	5	6	7	8	9
28. Did your partner prevent you from winning?
1	2	3	4	5	6	7	8	9
29. If you do not feel that the participant did well, did you think the participant seemed sorry for doing poorly?
1	2	3	4	5	6	7	8	9
30. Did the other participant communicate with you in any way; including spoken or non spoken ways (circle one)?
YES	NO
31. Did you think the other participant seemed sincere?
1	2	3	4	5	6	7	8	9
32. Did the other participant convey information to you either by spoken language, body movements, or through facial expression? If yes, what did they say or do?
33. What did their spoken language, body movements, or facial expressions mean to you? What were they saying to you?

Date of Birth:

Age:

Ethnicity:

Gender: Male   Female

Major:

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