EXECUTIVE SUMMARY

SARCASM, RISK ATTRACTION, AND GENDER

Andrew Walker

Non-literal language has been debated and researched by philosophers, linguists and cognitive psychologists who have hypothesized and proposed countless theories describing sarcasm's use and interpretation (Colston, 2000). Several theories have been describing how individuals process sarcasm (Gibbs, 2000), the effects of individuals' differences when processing sarcasm (Colston & Lee, 2004), and what those individuals differences could mean in the workplace (Mathieson et al., 2011).

The current research was survey-based that tested stated hypothesis relating to individual differences while interpreting sarcasm. Individual differences were hypothesized to influence how sarcastic situations were used and interpreted; the predictions stated that differences in relational aggression, and risk attraction traits predict how we use and interpret sarcastic statements. Risk attraction had the strongest relationship with sarcasm use and interpretation. Those with higher risk attraction were more likely to state they use sarcasm more, and were more likely to consider all presented forms of sarcasm as appropriate. The observed relationships supported the risk attraction hypothesis.

The Graded Salience Hypothesis was the most accepted theory of sarcasm use and interpretation that detailed a framework how individuals process sarcasm (Giora & Fein, 1999). The theory stated sarcasm has a positive correlation with the variables responsible for creating statements sarcastic and how individuals interpret sarcasm; the stronger the variables, the

stronger, or more salient the sarcastic interpretation. The graded salience framework was supported due to the inverse relationship between the low-indirect and high-direct situation responses to positive and negative responses. When the strength of the variables was increased the more negative and less positive the statements were rated. The inverse relationship supports the Graded Salience Hypothesis, the context hypothesis of relationships, and the violation expectations hypothesis.

Gender was also hypothesized to have a relationship with sarcasm use and interpretation with males using sarcasm in greater frequency and for different reasons than females (Colston & Lee, 2004). The findings support the gender difference hypothesis due to the observed differences in frequency of use (i.e., greater for males), interpretation (i.e., males rated low-indirect statements more appropriate), and risk attraction (i.e., males had a greater attraction to risk).

The relational aggression hypothesis linking relational aggression and sarcasm use was not supported. However, there were trends indicating a possible link between sarcasm use and relational aggression. It was recommended to continue researching the link between relational aggression and sarcasm due to the observed trends. The next step to advance sarcasm research is to develop a valid and reliable indicator of relational aggression. At this point, it was not supported the use of organic sarcasm to predict personality traits associated with relational aggression.

SARCASM, RISK ATTRACTION, AND GENDER

MSA 699 Project Report

Submitted in Partial Fulfillment of Requirements
for the Degree of
Master of Science in Administration
(Concentration in Research Administration)

By
Andrew Edward Walker
0000578119

Project Instructor
Edward L. Lamie

Date
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Clearance

CMU
CENTRAL MICHIGAN UNIVERSITY

Application for Approval of MSA 685/699 Capstone Project

Student's Name: Andrew Walker			Student No.: 0000578119
Street Address: 1611 Branch St. NW			Telephone No. (Work): (252) 493-7581
City: Wilson	State: NC	Zip: 27893	Telephone No. (Home): (252) 218-1108
Center: SMJAFB	Advisor's Name: Edward Lamie		Area of Concentration: Research Administration
Scheduled Project Beginning Date: September 15, 2015		Scheduled Project Completion Date: December 12, 2015	
Project Title: Sarcasm, Risk Attraction, and Gender			

Brief Project Description (A complete proposal, which describes the objectives, scope and methodology to be utilized, a preliminary bibliography and how data is to be analyzed, is to be attached.)

The purpose of the research is to investigate relationships between gender, risk attraction, relational aggression, and sarcasm use. The tested hypothesis is those with higher relational aggression and males are more likely to approve and rate sarcastic situations as more negative in comparison with low relationally aggressive individuals and females. The researched population includes faculty, staff, and students at Pitt Community College and CMU located in Eastern North Carolina. Participants will be excluded from the study if the primary researcher has a direct or indirect influence, or perceived influence, over any of the participants. Incentives will not be provided by the primary researcher. Participants will be selected based on their enrollment in either introductory psychology or sociology courses. Also, MSA-699 Seymour Johnson AFB students will be asked to participate in the study. Paper surveys will be distributed with all identifying information excluded from original survey data. All participants must be 18 years of age. Physical survey data will be kept under lock and key while electronic data will be kept under unique username and password protected hardware. A sarcasm use scale, risk attraction scale, a relational aggression scale, and gender will be completed by each participant (attached). In addition, they will be asked to rate sarcastic situations (attached). A chi-square analysis, and descriptive statistics will be used to identify relationships between variables.

Student Signature	Date
X Andrew Walker (Digitally signed by Andrew Walker DN: cn=Andrew Walker, o, ou, email=awalker@email.pitcc.edu, c=US Date: 2015.09.15 11:59:04 -04'00')	9/15/2015

The project described above and the attached proposal are approved. The project relates to the student's work or concentration.

MSA 685/699 Instructor's Signature	Date
X Edward Lamie (Digitally signed by Edward Lamie Date: 2015.09.15 11:05:58 -05'00')	September 15, 2015

ProfEd Form #78 (11/10) 30103 Original – monitor, Copy – student

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Chapter I Definition of the Problem

Introduction

Non-literal language includes similes, metaphors, satire, irony, indirect requests, idioms, and hyperboles (Gibbs, 1986). Six percent of natural daily conversations were non-literal language (Gibbs, 2000). With such a high percentage, understanding how individuals interpret, and perceive the use of non-literal language was critical in understanding different aspects of daily life. The possible impacts of this research study includes a greater understanding of non-literal language, organizational communications, psychological constructs, linguistic schemas, and inter-relational communications.

A robust body of research has been published describing how non-literal language was processed, interpreted, and applied within contextualized situations (Gibbs, 1992). How non-literal language was used and interpreted was dependent upon several factors (Gibbs, 1992). The dependencies includes interlocutor's shared knowledge (Colston, 2000), the relationship between interlocutors (Gibbs, 2000), gender (Colston & Lee, 2004; Gibbs, 2000; Holtgraves, 1991 & 1992), social/vocational standing (Pexman & Olineck, 2002), societal collective standpoints (Sechman & Couch, 1989), individual personality differences (Blasko, 1999), and self-reported use of sarcasm (Ivanko, Pexman, & Olineck, 2004).

A few key components were required to infuse sarcastic nuances were negative tension, victimization, failed expectations, and pragmatic insincerity (Campbell & Katz, 2012). It was found that each variable was independent of the other, and all identified variables were not required to induce sarcasm, but each variable's presence increased the probability of the statement being interpreted as sarcastic. Campbell and Katz (2012) noted sarcasm use could be a form of style, and they could not discount the effect of stylistic factors contributed to sarcasm

utilization and interpretation. It has already been identified there were several factors that influence the production and interpretation of non-literal language. Also, the individual pieces within a formula of an expected sarcastic contextualized situation could not account for the holistic creation of a sarcastic utterance. Meaning, the statement and the situation alone could not independently create a sarcastic statement–sarcasm was more dynamic than a statement and a situation. Individual differences were a factor when interpreting non-literal statements.

Background of Problem/Situation

Sarcasm is a sub-category of irony used as a tool to communicate non-literal meanings. Recent studies in sarcasm demonstrated sarcasm can be categorized based on the intended use. The categories included general sarcasm, embarrassment diffusion, frustration diffusion, and face-saving. Each sub-category had different reasons for being used (Ivanko et al., 2004). Reasons ranged from reducing the amount of positive emotion to increasing the amount of negative emotion.

Individual differences such as relational aggression, risk attraction, and gender have also been cited when taking into account how and why non-literal language was understood and interpreted (Ivanko et al., 2004). A common personality measure was the Goldberg Unipolar Big-Five factor personality scale with categories of extroversion, agreeableness, conscientiousness, openness, and emotional stability (Saucier, 1994). The personality measure was a self-reported adjective based measure. Meaning, an individual would review a list of adjectives and indicate how well the adjectives described them (Goldberg, 1992). The already researched and documented direct link between personality (Campbell & Katz, 2012), communication styles, and sarcasm use (Ivanko et al., 2004) elicited the conclusion of how individual personality differences influenced how sarcasm was used. However, the proposed

sarcasm use hypothesis did not have researched direct links between relational aggress and risk attraction.

Researchers have discussed sarcasm as a form of taking linguistic risk. Meaning, there is some risk involved because the speaker is leaving the listener to interpret a secondary meaning (Gibbs, 2000). For example, Billy expects to get an attractive haircut. He goes to the barber and gets a truly unattractive haircut. Jane, states, "nice haircut." At this point, Billy can interpret the statement as literal and think Jane likes his haircut, or he can interpret the statement as sarcastic and infer the second meaning–the observation of an unattractive haircut. In comparison it would be less risky for Jane to simply state, "that is an unattractive haircut." Jane was assuming more communication risk by leaving the statement up for interpretation in comparison to simply making the literal statement. Sarcasm instills a sense of style in communication that inherently assumes more risk. The allure to participate in this form of communication based on the unsureness of the statement was referred to as linguistic risk attraction.

Gender differences in the frequency of use (Gibbs, 2000), and interpretation of sarcastic utterances (Colston & Lee, 2004) have been observed. For example, females were more likely than males to interpret a statement as an indirect aggressive action (Holtgraves, 1991), use it as a function of power within relationships, and help to develop closeness within relationships (Holtgraves, 1992). Males on the other hand, use sarcasm twice as much (Gibbs, 2000), which was attributed to their assumed increased level of risk attraction, (Colston & Lee, 2004). Both Holtgrave's studies, and Colston's & Lee's (2004) concluded gender can predict how individuals interpret and use sarcasm.

There were multiple types of aggression. For example, physical aggression (i.e., punching, kicking, hitting, or threats of such actions) is a form of direct aggression (Crick,

Bigbee, & Howes, 1996). Relational aggression behaviors were characterized as interpersonal maltreatment intended to damage interpersonal relationships via rumors, ostracism, verbal and all perceived relationally manipulative actions (Crick & Grotpeter, 1996). Relational aggression is directly intended to hurt another individual using an already established relationship.

Aggression can be placed on situations where it is not present or is ambiguous. The tendency to superimpose aggression into a situation is called the hostile attribution bias (HAB) (Mathieson et al., 2011). The bias specifically works with peer aggression and can be in both males and females. Also, HAB was hypothesized to be linked to relational aggression. Meaning, those with HAB tendencies were also likely to be relationally aggressive (Crick, 1995). The HAB hypothesis states an individual would perceive aggression and hostility where it was not intended. Therefore, individuals with HAB would have increased relational aggression by unknowingly placing aggression within sarcastic situations by vehicle of the hostile attribution bias.

Sarcasm has been proven to be a form of caustic irony (Colston, 2000) that requires a contextualized situation (Gibbs, 1986) and has a direct victim (Lee & Katz, 1998). Individual differences (Toplak & Katz, 2000) relating to relational aggression (Lee & Katz, 1998; Colston, 2000), personality, gender, and our self-reported use of sarcasm (Ivanko et al., 2004) have been cited as possible causes for individual differences when interpreting sarcastic remarks and their intended meaning. Also, neurological processing of non-literal language has been observed (Kazmerski, Blasko, & Dessalegn, 2003) to show individual differences. Follow-up research investigated if there was personality influences on the non-literal language processing (Blasko, Kazmerski, Walker, Speck, & Ferrara, 2005). It was predicted relational aggression, personality, and the self-reported sarcasm scale would be able to predict sarcasm use and interpretation.

However, the additional research had difficulties in supporting the link between relational aggression, personality constructs, and sarcasm use and interpretation (Blasko et al., 2005). It is the goal of this research to test the theories surrounding individual difference and the perceived appropriate use and intended outcome of sarcastic statements.

Therefore, original data was collected using the Sarcasm Self-Report Scale (SSS) (Appendix A), relational aggression survey (Appendix B), risk attraction survey (Appendix C), and sarcastic situations (Appendix D) to research the linkages between the hypothesized individual differences when interpreting sarcastic situations. The relational aggression survey used in the Blasko et al. (2005) study used the Morales Scale that used the term "romantic relationships" when inferring about relationally aggressive tendencies. It was hypothesized that the dependence upon "romantic relationships" to define relational aggression could have been the cause for the lack of support within the Blasko et al. (2005) study. The relational aggression survey used in the current research used the more broadly defined "peer" relationship to define relational aggression (Loudin, Loukas, & Robinson, 2003). Lastly, the sarcastic situations were rated on three variables. They included how appropriate the sarcastic statements were and what the likelihood was the speaker intended to instill negative and positive emotion in the listener.

Purpose of the Study

Based on the presented body of research, additional research needs to be conducted on individual differences when interpreting contextualized sarcastic statements. In this study, it was the goal to observe a directional relationship between relational aggression, self-reported use of sarcasm, gender, and the appropriateness of sarcastic remarks and their intended meaning. Are individuals with higher relational aggression more likely to superimpose relationally aggressive emotions to sarcastic situations? Are individuals with higher relational aggression more likely to

approve more caustic sarcastic situations? Are males more likely to self-report and approve sarcastic situations? Are the observed theories in gender difference, risk attraction, and perceived appropriateness of the sarcastic remarks supported?

Implications for the research will help individuals who want to be able to predict a person's relational aggression by observing a person's use of sarcasm. It is hypothesized that when an individual uses a specific type of sarcasm, or approves of various forms of sarcasm, they are more likely to self-report being relationally aggressive. This form of aggression has been linked to distressed supervisor relations, decreased job satisfaction, increased job stress, less adaptive responses to problems, greater emotional dysregulation and increased organization aggression (Hickman, 2005). Therefore, the research has the possibility to predict if an individual self-reports high level of specific sarcasm use might also predict additional maladaptive work related activities. The individual difference hypothesis and sub-topics of linking relational aggression hypothesis, gender differences, and risk taking characteristics within individuals were supported. As a result of this research, managers, business leaders, and entrepreneurs will have a greater understanding of sarcasm to better predict an individual's relational aggression and subsequent work performance.

Scope of the Study

The scope of this research project was to identify relationships between relational aggression, self-perceived use of sarcasm, personality traits, and the appropriateness of sarcastic statements within the situations. This research focused on an individual's differences when interpreting sarcastic statements.

Definition of Terms

Ironic Complements: communications which uses irony to portray the subject positively (Pexman & Zvaigzne, 2004).

Sarcasm: verbal irony with a victim.

Indirect Aggression: covert behaviors in which the target is not confronted directly (Hickman, 1995).

Physical Aggression: direct attack on a person such as punching, kicking, and biting (Buss & Perry, 1992).

Verbal Aggression: as threats to another person's physical well-being and also includes verbal insults (Hickman, 2005).

Relational Aggression: a social bond is used as the vehicle to induce harm and includes acts such as spreading rumors, excluding another from a group/activity, and ignoring another (Mathieson et al., 2011).

Sarcastic Situations: short passages describing the interactions of two or more people in a common social situation (Katz, Blasko, & Kazmerski, 2004).

Interlocutors: individuals who are actively participating in verbal communication.

Verbal Irony: portraying a contrast between expectations and reality (Pexman & Olineck, 2002).

Congruency: a measure of the perceived distance between the situation and a given statement.

Sarcastic riskiness: the level of social distance between an expected statement and the provided iteration (Colston & Lee, 2004).

General Sarcasm from SSS: likelihood of using sarcasm in situations where it is typically used (i.e., in a negative situation with the intent to insult).

Embarrassment Diffusion from SSS: decrease the positivity in a situation.

Frustration Diffusion from SSS: serves to mock frustrating circumstances.

Face-Saving from SSS: used with new acquaintances and when complementing.

Chapter II Literature Review

Introduction to the Literature

This research focused on individual differences when interpreting sarcastic situations. However, a general overview of non-literal language, sarcasm, and the underlying theories supporting current understanding of non-literal language is covered to fully grasp the scope, and understanding of the topic. Dozens of research articles have been published in peer-reviewed journals relating to literal and non-literal language comprehension and use. Research topics included phonetics, neurological processing, and individual interpretation and utilization differences (Gibbs, 1992).

General Discussion

Non-literal word and phrase usage includes, but is not limited to personification, similes, metaphors, satire, irony, indirect requests, idioms, and hyperboles (Gibbs, 1986). Non-literal language differs from literal statements in the sense there is an understood meaning, also known as the product, which needs to be implied to correctly understand the full meaning of the statement (Gibbs, 1992). For example, making the statement, it is a beautiful day, can be interpreted literally, or as a non-literal statement depending on the situation. The appropriate interpretation of the statement was dependent upon the context with which the statement was made. The utterance could infer a non-literal meaning if it was stated on a truly miserable day, or a literal meeting if the day was truly beautiful. Dissecting non-literal expressions can be nuanced and requires a diverse, and an in-depth understanding of the topic (Gibbs, 1992).

Summary of Literature Reviewed

Processing of Non-literal Language Theories. The scope of the researched were clustered into four general areas: comprehension, recognition, interpretation, and appreciation

(Gibbs, 1992). How non-literal language is processed was first outlined by the Standard Pragmatic Model (Cuter, 1976; Grice, 1975, 1978; Searle, 1979). The model detailed three steps a person must take to understand a non-literal statement. First, an individual must compute a statement in a contextualized situation, second determine if the statement is appropriate for the situation, and third infer a second non-literal meaning to the statement (Gibbs, 1986). In other words, the theory requires an individual to first correctly recognize the literal meaning, make a decision to reject the literal meaning, and then infer a secondary meaning. The context of the situation and the relevant variables have to be salient enough for the intended target or the intended non-literal meaning will not be correctly understood (Ivanko & Pexman, 2003).

The Echoic Mention theory details what an observer of non-literal experiences while processing the intended meaning (Miller, Jorgensen, & Sperber, 1984). The theory states the observer must first "take the speaker to be mentioning the literal meaning of the utterance" and then "identify the echoed material mentioned and the speaker's attitude toward it" (Miller et al., 1984, p. 115). This theory details a more direct approach in accessing the non-literal meaning. Meaning, the literal statement is bypassed and the non-literal meaning is accessed first due to the overwhelming presence of the speaker's implied references.

The Echoic Reminder Theory also described processing of non-literal language to be accessed first with the requirement to process the literal statement. However, it did differ from the Echoic Mention Theory in two specific ways: first highlights the reminder function of echoic utterances, and second not all utterances were understood by all parties involved (Kreuze & Glucksberg, 1989). Therefore, the utterance is not a true mention of an understood social norm, but a reminder of a social norm (Kreuze & Glucksberg, 1989). Either way, the Echoic Mention and Reminder Theories differ from the Standard Pragmatic Model because the echoic models do

not require the listener to first reference the literal meaning, then move to the non-literal meaning. Both echoic models bypass the first step and reference the non-literal meaning via the direct mention or reminder implied by the statement originator (Giora, 1995).

The previous three theories can be organized by the order of non-literal product comprehension. The Standard Pragmatic Model requires the literal statement to be accessed first, while the Echoic Mention and Reminder Theories state the literal statement can be bypassed all together. The next theory states the literal and non-literal statements are accessed at the same time. The Allusional Pretense Theory states the non-literal understanding is accessed at the same time as the literal meaning due to a failed literal interpretation (Kumon-Nakamura, Glucksberg, & Brown, 1995).

The previously discussed theories utilize several research methods. However, the most prevalent research method was the time sequencing and word/statement recognition. This method presented individuals with a written, or spoken situation and then were asked various questions ranging from comprehension too determining the speaker's underlying intent (i.e., was the statement positive, negative, literal, non-literal, happy, and/or sad). The time it took for a participant to respond to the questions would give the researcher an indication of neurological and/or mental processes. The assumption was if a person took longer to process the sarcastic statement they must be taking more time to process the information due to accessing the literal statement first, thinking about the associated norm, and then identifying the statement as sarcastic. It was assumed the longer time was a result of the additional processing time required to understand the sarcastic statement. Another researcher took a more holistic approach when determined how literal and non-literal language is processed.

Two additional perspectives describing non-literal language processing include the indirect negation view (Giora, 1995) and the graded salience hypothesis (Giora, 1997). The indirect negation view argues an accurate interpretation of the ironic utterance "involves both what is said and what is meant (i.e., implied)… are activated as to spell out the difference or contrast between them" (Giora, 1995, p. 245). Giora further stated "this view of irony takes an interactionist stance and reject both the substitution (e.g., the traditional and pretense accounts) and the echoic view" (p. 245). The indirect negation view requires both the statement and the meaning to be accurately interpreted to correctly inference the underlying meaning of the non-literal statement. Giora further clarifies the classic and echoic views are too simple to fully understand the dynamic processes with interpreting metaphors.

Giora continued her work and developed the Graded Salience Hypothesis. The hypothesis states "the salient (e.g., conventional, frequent, or familiar) meanings should be activated before less salient meanings are retrieved" (Giora & Fein, 1999). This hypothesis is a bit different than the other theories because it give the context greater weight in attributing to the second, or non-literal meaning. Previous theories described language processing as a linear process with much of the emphasis placed on the statement. The Graded Salience Hypothesis states the context is just as important as the statements. The evolution of non-literal language processes has moved from a more sequential stance to more of a context-driven process.

Characteristics, Variables, and Variances within Non-literal Language. Specific conditions have to be met for sarcasm to be implied. The first condition is called the allusion to violated expectations (Colston, 2000). This condition is present when a "prediction, expectation, preference, previously made comment, or norm was violated with a given contextualized situation" (p. 278). The second condition requires the statement to be pragmatically insincere.

Meaning, the statement is presented in a way which makes it counterfactual to the intended norm embedded in the situation. For example, a boy wants to get an attractive haircut and the ensuing situation produced an unattractive haircut. The violated expectation would be the unattractive haircut. A pragmatically insincere non-literal statement would be "that sure is a terrific 'do'," or "nice hair," or "I want your barber?" (Colston, 2000). Non-literal language recognition patterns presented above first addressed the understood expectation, then impose a judgment or opinion. The added opinion, or underlying judgment is called the product (Kumon-Nakamura et al., 1995).

The product is discussed in terms of the outcome. It can be positive, negative, surprising, happy, sad, derogatory, humorous, etc. (Kreuze & Glucksberg, 1989). The product tells us a lot about the person who made the statement, and the person who imposes the second, non-literal meaning/product. There are already documented research studies citing product interpretation differences in gender (Colston & Lee, 2004; Gibbs, 2000; Holtgraves, 1991, 1992), social classes and vocations (Pexman & Olineck, 2002), and personality differences (Kazmerski, et al., 2003). Another variable measured in non-literal language research is the distances between the context (i.e., expected attractive haircut), and the statement (i.e., nice haircut vs. ugly haircut).

The distance between the statement's literal meaning and the situation's relativity was referred to as congruency (Ivanko & Pexman, 2003). A statement is considered congruent when the statement is literal. A statement is incongruent when it is not in line with the situation. For example, Bill and Bob are fishing. Bob catches a truly small fish. Bill states, "that is an enormous fish." In this situation, it would be considered an incongruent statement because Bob

caught a small fish, and there was a big fish statement. Simply stated, congruency measures the distance between the statement and the situation (Ivanko & Pexman, 2003).

Aggression and Relational Aggression. Relational aggression has been predicted to play a role in sarcasm use because, by definition, relational aggression and sarcasm were designed to harm peer relationships through indirect aggression. Sarcasm was a form of verbal indirect aggression with an intended target (Gibbs, 2000). Therefore, it was proposed the higher a person self-rates their relational aggression, the more likely they were going to use and approve sarcasm in comparison with a person who does not self-rate themselves as high.

Perspectives associated with relational aggression included the first and third person. The first person perspective was the act of being aggressive towards another peer. The third person perspective involved witnessing relational aggression towards another peer or towards the perceiver. For example, Bill goes to get an attractive haircut. Bill got a truly awful haircut. Jane tells Bill, "you have a fantastic barber." Alexander witnesses the statement. The first person can be either Bill, Jane, or Alexander depending on the perceived role. However Alexander was the true third person observing the interaction between Bill and Jane.

Based on the general use of sarcasm hypothesis, Alexander would have to know Bill, Jane, and the situations to correctly understand the underlying meaning behind Jane's statement– you have a fantastic barber. If Alexander does not have a full understanding of the situation, he is required to superimpose a meaning on the statement. For example, Alexander without understanding Jane's and Bill's relationship could truly think Jane likes Bill's barber. Our personalities affect the meanings we superimpose on ambiguous situations. This phenomenon is commonly referred to as the speaker's intent attributions. It has been proposed that if a person is not relationally aggressive, they would superimpose the literal meaning behind Jane's statement

and think Jane really likes Bill's barber. If the person was higher in relational aggression, they would be more likely to superimpose a more aggressive meaning to the statement. Provocational situations were hypothetical situations where the intent of the speaker was ambiguous. Crick's (1995) research states the hypothesis that relational aggressive individuals tend to place relationally aggressive intent where it is not originally intended, and rated feeling more distressed when taking on the role of the target in provocational situations in comparison with low relational aggression individuals.

Gender Differences, Irony Comprehension, and Use. Several research studies have investigated gender differences in the use and comprehension of irony. Colston and Lee (2004) completed a series of studies investigating why there were differences between males and females while using ironic statements. Their first of five studies asked individuals to guess if the speaker of a sarcastic statement was male or female. They used indeterminate gender names within situations so the reader could not infer a gender of the speaker based in the content presented in the situation. It was found males and females predicted sarcastic statements were more likely to be produced by a male. The assumption behind the study was a person would naturally attribute a gender on the speaker based on their day-to-day experiences. Colston and Lee (2004) used these results to predict that males use sarcasm more than females due to participants superimpose the most prevalent gender upon the speaker based on their organic life experiences. Colston and Lee (2004) then investigated potential reasons for the differences in gender associations.

Experiments two and three of five tested the function of verbal irony for males and females (Colston & Lee, 2004). The researchers first had to identify why individuals use irony. They identified several reasons individuals use irony (i.e., humor, express surprise, master over a

topic or issue, diminish criticism or enhance criticism, highlight deviance from expectations, and to show negative and positive emotions). Another research study complemented the list with 20 possible reasons to use sarcasm (Roberts & Kreuz, 1994). Therefore, Colston & Lee (2004) selected the top five highest correlated usages for sarcasm from the Roberts and Kreuz (1994) study. Experiments two and three included 1) deemphasize an idea, 2) show negative emotion, 3) show humor, 4) clarify an idea, and 5) manage negative discourse. The third study further researched additional causes which identified an individual's irony was intended to be rude, insult, and to imply additional ideas (Colston & Lee, 2004).

Experiments four and five used the verified causal functions method to investigate which gender prefers each reason. Overall, the fourth study found that "both males and females think verbal irony poses more of a risk for misinterpretation than do literal remarks," (Colston & Lee, 2004, p. 300). Experiment five asked participants to rate who was more likely to use a statement in a given situation (i.e., males vs. females) and for what reason. Colston & Lee (2004) found males were more likely to use an ironic statement vs. a literal statement while females did not show a preference. Colston and Lee (2004) came to the conclusion in the fifth study that "an actual difference in the use of verbal irony exists as a function of speaker gender" (p. 301), negative verbal comments on negative situations were thought to mostly likely be male, males report the greater likelihood of using verbal irony, and males and females report verbal irony were more likely to be misunderstood in ironic situations in comparison to literal statements (Colston and Lee, 2004). There were specific nuances when discussing gender differences and irony. An early study by Gibbs (2000) also found differences between males and females.

Raymond Gibbs (2000) took a more organic approach while researching ironic utterances. Gibbs recorded 62 ten-minute conversations between college students and found five

types of ironic utterances: jocularity, sarcasm, hyperbole, rhetorical questions, and understatements. In the study, it was found eight percent of all conversations were considered ironic. The research found 64% of all sarcastic remarks were spoken by men while 36% were spoken by females (Gibbs, 2000).

Both studies found males were more likely to use sarcasm. The Colston and Lee (2004) studies also found males were more likely to use ironic utterances in negative situations. It was hypothesized males were more likely to use irony because "in being an indirect or figurative form of language, might pose a relatively greater risk of misinterpretation and thus may appeal more to male speakers than female speakers in part because of this risk" (p. 292). The relevant gender research identified several gender differences but failed in drawing a direct link between gender, relational aggression, and sarcasm use. The studies assumed the differences were based on risk attraction. As noted by the Colston and Lee (2004) study, additional research needs to be completed investigating gender differences while taking into account aggression and risk attraction.

Summary of Literature Review

The literature review outlined the evolution and theories behind non-literal language processing, the nature of relational aggression, gender differences when interpreting literal and non-literal language, and personality differences when using and perceiving non-literal language. Processing of non-literal language has moved from a linear approach (i.e., Standard Pragmatic Model) to the more contextualized theory (i.e., Graded Salience Hypothesis). Relational aggression and sarcasm have been linked by their definitions; one defines the other–aggression through the use of relationships (Gibbs, 1986). However, a direct correlation between relational aggression and sarcasm use has yet to be observed. Gender differences have been predicted to

influence the use, perceived use, and the perceived motive behind the use of non-literal language (Colston & Lee, 2004). Lastly, as hypothesized by Colston and Lee (2004), an individual's risk attraction with personality has been predicted to have a positive correlation with sarcasm frequency of use, and sarcasm style (i.e., diffusing, negative, general sarcasm, etc.) yet there has not been a study demonstrating the positive correlation directly–only speculation via social norms.

Researchers have stated that there needs to be a more direct link between sarcasm use, relational aggression, risk attraction, and gender differences in sarcasm research. The objective of this research was to give a more in-depth view of our understanding between sarcasm use, relational aggression, gender differences, and risk attraction constructs and how they correlate with each other when interpreting and self-rating sarcasm use.

Chapter III Research Methodology

Research Methodology

The proposed research study built upon previous research completed by Colston and Lee (2004), Blasko et al. (2005), and Crick (1995), which investigated individual differences in understanding and processing sarcasm and literal statements. The individual differences previously researched were gender, risk attraction, and relational aggression. The various research methods used included the presentation of sarcastic and literal statements in the written word. This research study utilized previously developed research methods to help reduce methodological research variances. One goal was to compare the results from the current study to previous research studies (Colston & Lee, 2004; Blasko et al. 2005; Ivanko et al. 2004) as previously outlined in Chapters I and II.

This chapter contains several sections: instrumentation, data collection procedures, population, physical document and data protection, data processing and analysis, and methodological limitations. Individual difference markers have been identified, normalized, and validated by the original authors and researchers.

Instrumentation

This non-literal language research used three different surveys that asked about individuals' differences, which included the risk attraction survey (Griffin, Barry, & Attaway, 1996), a relational aggression survey (Loudin et al., 2003) and the Sarcasm Self-Report Scale (SSS) (Ivanko et al., 2004). The risk attraction survey was previously utilized in marketing research to measure an individual's general attraction to risk (Griffin et al., 1996). The Loudin et al. (2003) relational aggression survey was used in a study targeted toward developing an

industry standard marker for relational aggression. The SSS was developed specifically to help researchers best measure self-reported sarcasm use (Ivanko et al., 2004).

The relational aggression survey from Loudin et al. (2003) consisted of 81 items designed to measure overt aggression, dispositional empathy, social anxiety, and relational aggression. The current study utilized the relational aggression survey sub-section, which included seven items from Werner and Crick's (1999) larger aggression survey. The marker was scaled from 7 (very likely) to 1 (not very likely) and was summed so the higher scores reflected higher relational aggressive tendencies. The internal consistency (coefficient alpha) between the seven items was .69, (Loudin et al., 2003). The internal consistency was strong enough to demonstrate the utilization of the marker in future research.

The SSS was developed by Ivanko et al. (2004) to provide an industry standard personality marker which could be used to measure self-reported sarcasm use. The SSS had four different sub-scales for measuring sarcasm which included general sarcasm, face-saving, embarrassment diffusion, and frustration diffusion (Ivanko et al., 2004). The general sarcasm sub-scale was assessed with six items. The face-saving sub-scale was assessed with three items. Face-saving sarcasm was used when an individual used sarcasm around new acquaintances or for complementing. The next sub-category of sarcasm used was embarrassment diffusion, which was assessed with three survey items. This sub-category measured how much an individual used sarcasm to downplay positive emotions. The last category was frustration diffusion. It involved deemphasizing annoying situations. The frustration diffusion sub-component was also measured with three items.

The evaluation and development of the SSS was completed over a series of three studies (Ivanko et al., 2004). A principal components analysis was used to develop the four categories

and the SSS. Out of seven, general sarcasm had an observed mean of 5.39, followed by frustration diffusion 4.61, face-saving with 3.88, and embarrassment diffusion 3.08. The SSS was rated on a 7 point scale with 1 being highly extremely uncharacteristic and 7 being extremely characteristic.

The sarcasm interpretation task was the last stimuli indicator in the current research study. The sarcastic situations were selected based on the target's direct or indirect sarcastic remarks. The statements were originally designed by the Penn State Psychology Lab under the leadership of Dr. Blasko and Dr. Kazmerski. The sarcastic situations followed a basic flow; two individuals were in a situation that had an expectation, the expectation was either met or not met, and an incongruent statement was communicated. Each participant then rated the speaker's intent to induce negative or positive emotions, and if the statement was appropriate for the situation. An example is listed below. A full list of sarcastic situations can be found in Appendix D.

> **Figurative:** David and his best friend Jane planned to go hiking one morning because the weathercaster predicted a sunny day. When David arrived to pick Jane up he was pelted with rain. Jane answered the door and he greeted her with, "This weather is certainly beautiful!"

Data Collection

Population. The identified populations included college-age students and faculty/staff at a local community college and graduate level college students taking MSA-699. Participants were required to be 18 years old. For those under the age of 18, they were not asked to complete the surveys. Pitt Community College required students to be assessed on their reading skills upon applying to the College. Students were required to take developmental English if they

could not read above an eighth grade reading level. A corequisite was already in place for the classes sampled. Students should have been enrolled or have already completed college level English to be in the sampled class. Therefore, reading comprehension did not have to be asked or validated, because Pitt Community College had already ensured the reading skills of the sampled population.

Local Community College – Pitt Community College (PCC) Students. Pitt Community College, located in Winterville, NC, was a SACS accredited institution as of August 30, 2015. They award two-year associate level degrees ranging from welding to polysomnography. They have an internal review process to ensure the protection of their student population. All PCC processes were followed in the procurement of human subjects.

Local Community College – Pitt Community College (PCC) Faculty Staff & Convenience Sampling. The original intent of this research was to collect data from a sample population and make assumptions about a larger population based on the data collected. Therefore, it was recommended to solicit participants from not only students, but from faculty and staff who work at PCC. The addition of the sample population helped to increase the likelihood of the sample representing the larger population.

Local Graduate School-Central Michigan University (CMU) Students. In addition to PCC students being asked to participate, CMU graduate level students were asked to participate in the current research study. A branch campus of CMU was located at Seymore Johnson Air Force Base as of August 30, 2015. Previous research studies have stated limitations due to the sample population (Colston and Lee, 2004). The limitation was due to the population consisting of only college students from the upper middle class who were taking an introduction to

psychology course in their freshman or sophomore year. It was the goal of this research to increase the ecological validity of the study by including graduate level students attending CMU.

Based on previously completed research, the projected sample size was based on individual measures and their respective beta power. For example, significant gender differences were observed with just 24 individuals (Colston & Lee, 2004) in comparison with research completed by Blasko et al. (2005) where 120 participants were required to demonstrate significant relationships between personality markers and sarcasm use. Therefore, it was targeted to collect data from at least 50 individuals and project how many additional participants were needed to detect significant relationships.

Physical Document and Data Protection. Research packets consisting of the three individual markers, demographics, and the sarcastic situations were printed, compiled, distributed to each participant, and collected. Each packet was completed by an individual on their own. Group work was not allowed. Students at PCC completed the packets individually while sitting in a traditional classroom. Identifying information about an individual was not placed on the actual personality markers or the situation response forms. Physical completed documents were kept at the address listed on the consent form under lock and key. Electronic data was secured under username and password protected protocols.

Data Processing and Analysis Procedures

Analytical Design. This research study took the quantitative approach. The independent variables were the various individual markers (i.e., SSS, relational aggression, and risk attraction) used to established differences between the sampled populations. The dependent variables were the ratings observed on the situations response form. The relation aggression marker produced a 2 (high vs. low relational aggression) x situations interpretation task. The

SSS marker produced a 2 (high vs. low SSS) x situations interpretation task. The risk attraction produced a 2 (high vs. low) x situation interpretation task.

Specific interactions were predicted between the various measures. For example, an individual who rated high on the risk attraction rated higher on general sarcasm use, and face-saving based on the research completed by Ivanko et al. (2004). Relationships were expected between the relational aggression survey and general sarcasm use and sub-scales. Relationships were expected between gender and SSS (higher for males in general), relational aggression (higher for males) and sarcastic situations (higher frequency of appropriateness ratings for males, and higher intended negative feelings). The research did not complete a three way analysis (2x2x2) model due to the requirements of population sampling. For example, a 2x2 research study would only require high or low relational aggression (2) by gender (2), (i.e., a 2x2 research design) vs. a high or low relational aggression (2), x high or low risk attraction (2), x gender (2) (2x2x2). The three variable analytical model would require more resources than allotted to the scope of the research project. Therefore, a 2x2 research design was followed.

Level of Data. There was one levels of data being collected. The data being collected on the SSS, aggression scales, risk attraction, and situations were nominal level. The type of analysis was dependent upon the level of data. There were a few predicted relationships when comparing the individual differences and how we interpret sarcastic statements. The first option was to use the observed sample mean to create the high or low RA, SSS, and risk attraction groups. The second option was to use the originally observed means as published in the original

research to develop the high and low groups. A comparative analysis between the observed mean and the original research mean was completed to identify the best possible option.

Methodological Limitations

College students and individuals who work in an educational setting were asked to participate in the current research study. The current research study was limited, but the population samples were more representative of the larger community in comparison with previous research studies on non-literal language and sarcasm.

Chapter IV Data Analysis

Introduction

The CMU approved informed consent, SSS survey, relational aggression survey, risk attraction survey, and the ten sarcastic situations were printed and placed into 9" by 11" envelopes and distributed to students, faculty, and staff at Seymore Johnson Air Force Base and at Pitt Community College. Each survey scale was placed on a 1 to 7 scale. The left side of the scale started with a 1 and was described by either being unlikely, extremely uncharacteristic, or strongly disagreed. The far right side ended with a 7 and was described as being extremely characteristic, likely, or strongly agree. Each item is detailed in Appendix A through D. Participants were instructed not to write their names, or any other identifying information, on the surveys to ensure their anonymity. After the surveys were distributed and completed, they were placed back into the original envelope by the participant and collected by the primary researcher.

A total of 278 surveys were completed and collected between September 16, 2015 and October 22, 2015. The majority of returned surveys consisted of students from Pitt Community College who enrolled in a traditional seated introduction to psychology or introduction to sociology class. The raw data was entered into Microsoft Excel and imported into SPSS 23 for statistical analysis. Descriptive statistics and chi-square analysis were conducted to describe the observed population and to determine relationships between the participant's responses to the surveys and the interpretation task of the sarcastic situations.

Data Presentation and Analysis

The interpretation task of the sarcastic situations required individuals to judge specific situations on three different indicators. The first was the appropriateness of a sarcastic statement. The second question asked if the speaker intended to induce positive emotion. The third

question asked if the speaker intended to induce negative emotion. Each indicator was place on a scale from 1 to 7 scale with 1 being strongly disagree and 7 being strongly agree. There were two categories of situations: low-indirect, and high-direct. The situation's category was based on the statuses of the stated relationship with the situation, and the directness of the sarcastic statement. The relationship statuses were coded as either low, or high. As seen in Table 1, there were five sarcastic situations coded as low-indirect. This stimuli category consisted of situations of individuals who did not have a strong relationship (i.e., low) with each other, and the sarcastic statement was directed towards another item, person, or entity (i.e., indirect) outside of the immediate situation. The second category of stimuli included situations where a stronger relationship bond was stated (i.e., high) and the sarcastic statement was directed towards an individual within the situation (i.e., direct). A complete list of the situations can be seen in Appendix D. The mean calculation for each situation's ratings can be seen in Table 1 that details each condition and situation.

Table 1
Situations by Condition with Appropriateness, Positive and Negative Mean Ratings

	Appropriateness		Positive		Negative	
Condition	*M*	*n*	*M*	*n*	*M*	*n*
Low-Indirect	4.56	1,242	4.10	1,242	3.63	1,243
Weather	4.94	249	4.60	248	3.08	249
Trains	4.36	248	3.31	248	4.52	249
Country	4.71	248	3.66	248	4.20	249
Pictures	4.22	249	3.83	249	3.72	249
Bowling	4.58	248	5.10	249	2.64	247
High-Direct	3.91	1,245	3.16	1,245	4.55	1,245
Garden	3.50	249	2.85	249	4.97	249
Presentation	3.60	249	2.82	249	4.85	249
Producer	3.98	249	4.00	249	3.75	249
Carpenter	4.31	249	3.18	249	4.41	249
Computer	4.14	249	2.95	249	4.74	249

The low-indirect situations were rated more positive (*M*=4.10) in comparison to the high-direct situations (*M*=3.16) Vice versa, the high-direct category stimuli were rated more negative (*M*=4.55) in comparison with the low-indirect situations (*M=3.63).* The low-indirect situations were rated more appropriate (*M*=4.56) in comparison to the high-direct situations (*M*=3.91). There was an inverse relationship between low and high direct situations as seen in Figure 1. The positive and negative mean rating intention had an interaction when rated by participants. This trend illustrates a relationship between the variables within the category of situations, and how they were interpreted; as the strength of the variables increased (i.e., relationships and directness of the sarcasm), the more negative and less positive the statement was perceived by the participant population (i.e., *N*=278).

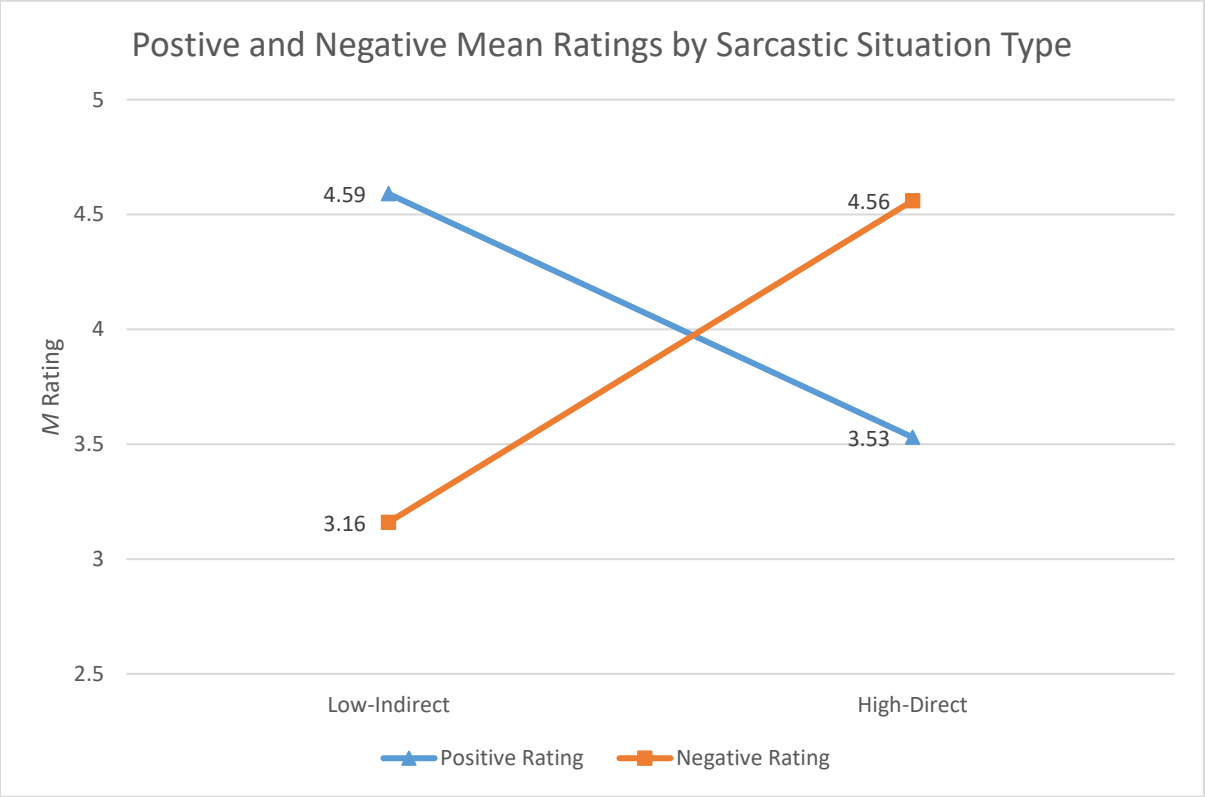

Figure 1. Positive and Negative Mean Ratings by Sarcastic Situation Type

Research Question 1: Sarcasm Self-Report Scale (SSS) and the Interpretation Task.

Overall, the sampled population did not rate themselves as sarcastic as the original researched population observed in the Ivanko et al. (2004) study. Individuals did not rate their sarcasm use as high for 13 of the 15 questions. Table 2 displays, by question, the mean rating and standard deviation from Ivanko et al. (2004) participants and the observed population. The greatest disparities observed related to questions 2, 7, and 13. Questions 2 and 7 related to face-saving that involved using sarcasm around new acquaintance. Question 13 was an item relating to frustration diffusion; using sarcasm to reduce negative emotion within a situation.

Table 2
Original and Current Research Comparing the Sarcasm Self-Report Scale (SSS)

	Ivanko et al. (2004)		Observed	
SSS Item	*M*	SD	*M*	SD
1. How sarcastic do you think you are?	5.27	1.66	4.80	1.43
2. Use sarcasm with someone you just met?	4.05	1.66	2.98	1.70
3. Use sarcasm when insulting someone?	5.68	1.49	4.78	2.00
4. Use sarcasm with a best friend?	6.25	1.00	5.90	1.61
5. How sarcastic would your friends say you are?	5.21	1.34	4.93	1.65
6. Use sarcasm with a family member?	DNA	DNA	5.00	1.74
7. Use sarcasm with a new colleague at work?	3.69	1.54	2.61	1.54
8. Use sarcasm while complimenting someone?	2.90	1.67	2.40	1.60
9. Make sarcastic statements during daily interactions?	4.61	1.35	4.24	1.70
10. Understand another person's sarcasm?	DNA	DNA	5.21	1.59
11. When fighting over how to share the household chores.	4.45	1.78	4.18	2.04
12. Scored the winning point in the final basketball game.	2.98	1.71	3.63	2.18
13. Made mistake on the assignment you just handed in.	4.29	1.96	3.18	2.01
14. In a mile long line waiting to pay for a prescription.	4.87	1.75	4.34	2.02
15. Engaged telling your friends about it over coffee.	2.45	1.58	2.77	1.91
16. Received a big promotion at work.	3.29	1.75	3.16	2.04
17. Your friend locked your keys in the car.	5.05	1.88	4.47	2.27

Note: DNA = data was not collected in the original research. The SSS can be seen in Appendix A.

After a participant completed the SSS, they completed an interpretation task of sarcastic situations (Appendix D). Individuals were categorized by their sub-groups of sarcasm use: general sarcasm (*M*=4.88), face-saving (*M*=2.67), embarrassment diffusion (*M*=2.67), and frustration diffusion (*M*=3.18). When an individual mean score for general sarcasm fell below the mean of 4.88, they were categorized as low for general sarcasm. If their measure of face-saving was above 2.67, they were categorized as high for face-saving. An individual could have a mixture of high and low categories associated with the SSS.

Table 3
Frequency Distribution by SSS Sub-categories

General Sarcasm, Face-Saving, Frustration Diffusion, Embarrassment Diffusion	*n*	%
High, High, High, High	50	18.05
Low, Low, Low, Low	47	16.97
High, Low, High, Low	24	8.66
Low, Low, High, High	22	7.94
Low, Low, Low, High	20	7.22
Low, Low, High, Low	18	6.50
High, Low, High, High	15	5.42
High, Low, Low, Low	14	5.05
High, High, High, Low	12	4.33
High, High, Low, Low	12	4.33
High, High, Low, High	10	3.61
Low, High, Low, High	9	3.25
Low, High, High, High	8	2.89
Low, High, Low, Low	7	2.53
High, Low, Low, High	5	1.81
Low, High, High, Low	4	1.44
Total	277	100%

Note: the frequency distribution types follows the sequence of sarcasm use as detailed in the table header. For example, the first frequency distribution had a total *n* of 50, and rated high on all four categories of sarcasm use. The second frequency distribution had an *n* of 47 and they ranked low on all of the categories of sarcasm use. The third category, 24 individuals scored high on general sarcasm, low on face-saving, high on frustration diffusion, and low on embarrassment diffusion.

Table 3 details the frequency distribution categories associated within the SSS. The two largest groups were individuals who were either scored high, or low on all indicators of the SSS. The third highest group had an equal distribution of high and low categories (i.e., high on general sarcasm, low on face-saving, high on frustration diffusion, and low on embarrassment diffusion).

Table 4
High or Low SSS Category by Mean Rating on Interpretation Task

Condition	SSS Category	
	All Low (*n*=43)	All High (*n*=46)
Low-Indirect		
Appropriateness	3.85	5.16*
Positive	3.80	4.26
Negative	3.76	3.48
High-Direct		
Appropriateness	3.37	4.27*
Positive	2.86	3.03
Negative	4.72	4.63

Note: All Low consists of 43 individuals who scored below the mean on all four of the SSS sub-categories. All High consists of 46 individuals who scored above the mean on all four of the SSS subcategories. *p <.01.

Table 4 compares the extreme cases of those who responded to either all above the mean, or all below the mean for each of the sub-scales on the SSS. Significant relationships were observed with the appropriateness ratings. Individuals who rated themselves as above the mean for all four indicators on the SSS also approve of low-indirect χ^2 (1, N = 89) = 4.99, p = .022, and high-direct sarcastic statements χ^2 (1, N = 89) = 6.01, p = .012. There was not a significant relationship in terms of intended positive or negative intended emotion. However, there was a trend for high SSS participants rating the situation more positive, and less negative in comparison with those who rated themselves low on the SSS. Meaning, those who considered themselves more sarcastic also considered the sarcastic situations as more appropriate, more positive, and less negative in comparison with the low SSS group.

The SSS sub-categories appeared to have a relationship with how individuals rated the situation categories. As seen in Table 5, individuals who rated themselves high in their general sarcasm use also indicated high appropriateness of sarcasm in low-indirect situations χ^2 (1, N = 277) = 7.08, p = .029 in comparison with low general sarcasm users. Embarrassment diffusion (i.e., using sarcasm to reduce compliments in positive situations) showed to have a relationship with low-indirect situations and how positivity each situation was rated χ^2 (1, N = 277) = 5.96 p = .05. The high-direct situations also had a relationship with embarrassment diffusion. The situations were rated more appropriate χ^2 (1, N = 277) = 7.90, p = .019, and less negativity χ^2 (1, N = 277) = 10.259 p = .006 in comparison with low embarrassment diffusion participants. Meaning, individuals who rated themselves high on the embarrassment diffusion scale, were more likely to rate the high-direct sarcastic situation as more positive, and less negative. The sarcasm sub-scales of face-saving and frustration diffusion did not show a statistically significant relationship with the interpretation of the situations. These statistically significant relationships demonstrated there was a relationship between a person's self-reported sarcasm use, and how they approve and interpret sarcastic situations.

Table 5
High and Low Sarcasm Self-Report Scale (SSS) by Situation Categories

	General Sarcasm		Face-saving		Embarrassment Diffusion		Frustration Diffusion	
Condition	*Low*	*High*	*Low*	*High*	*Low*	*High*	*Low*	*High*
Low-Indirect								
Approp.	4.12	4.97*	4.24	4.80	4.31	4.80	4.24	4.81
Positive	4.00	4.21	4.12	4.09	3.87	4.33*	4.12	4.09
Negative	3.66	3.61	3.58	3.68	3.86	3.41	3.58	3.68
High-Direct								
Approp.	3.75	4.06	3.68	4.08	3.65	4.16*	3.68	4.08
Positive	3.24	3.08	3.12	3.19	2.94	3.37	3.12	3.19
Negative	4.44	4.65	4.59	4.5	4.82	4.27*	4.59	4.51

Research Question 2: Relational Aggression and the Interpretation Task. The relational aggression survey (Loudin et al., 2003) was given to each participant to further investigate the relationship between relational aggression and sarcasm interpretation. The original research conducted to develop the relational aggression survey found a mean composite score was 14.67 (SD, 5.81) with males at 16.01 (SD, 6.59) and females at 14.15 (SD 5.41) (Storch, Bagner, Geffken, & Baumeister, 2004). In comparison, it was found the total population in the current research mean calculation was 16.65 (SD, 6.78), with males at 16.10 (SD, 6.89), and females at 16.60 (SD, 6.70). Both research studies used a 1 to 7 scale with 1 being less characteristic, and 7 being more characteristic. In comparison to the Storch et al. (2004) study, the population studied in the current research was slightly more relationally aggressive. There was a flip between males and females when compared to the Storch et al. (2004) study and the results of the current study. Females self-reported being more relationally aggressive in comparison to males in the current study. However, in the current research study the difference between males and females with relational aggression was not statistically significant χ^2 (1, N = 273) = .192, p = .661.

Figure 2 presents the mean ratings for all participants who took the relational aggression survey. Question 1 that asked about "silent treatment" had the highest mean rating. The mean rating for questions 2 through 7 did not go above 3. A mean response of less than or equal to 3 indicates participants identified the described interactions as being uncharacteristic. Figure 2 illustrates the mean responses and standard deviations for question 1 through 7 for the relational aggression survey.

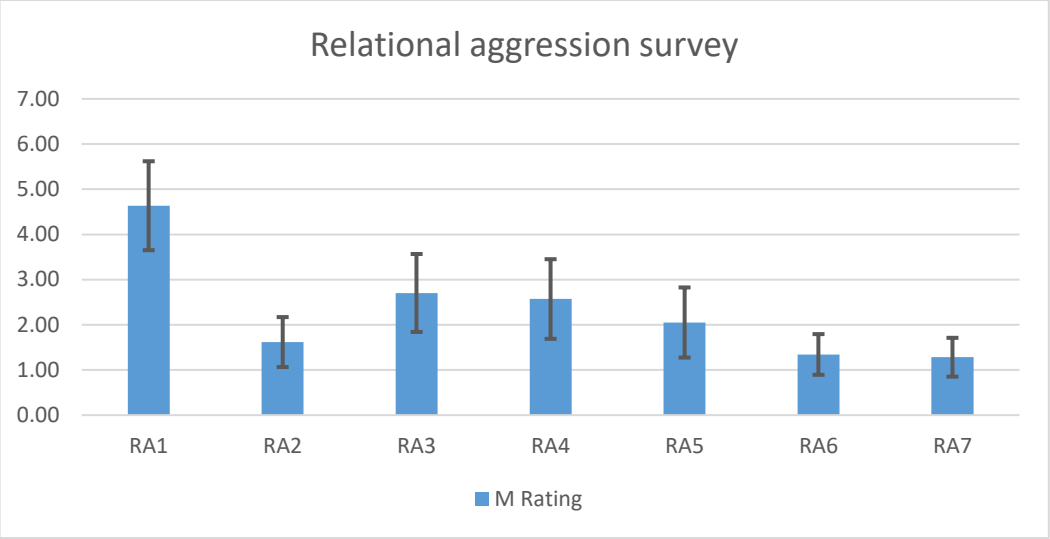

Figure 2. Relational Aggression Survey

There was an observed relationship between relational aggression and frustration diffusion, χ^2 (1, N = 277) = 3.43, p = .04. Those who self-rated above the mean on their relational aggression composite score also rated themselves using sarcasm more in situations that were truly annoying. Frustration diffusion was the only measure that showed a statistically significant relationship with the relational aggression survey. All other surveys, and the interpretation task did not show a statistically significant relationship with the responses collected on the relational aggression survey.

Research Question 3: Risk Attraction and the Interpretation Task. Risk attraction was cited to have possible relationships with how individuals use and interpret sarcasm. Table 6 presents significant relationships between risk attraction, SSS, and interpretation task are indicated with an asterisk. Those who self-reported high-risk attraction also reported using general sarcasm more χ^2 (1, N = 277) = 13.68, p = .001, face-saving (i.e., around new acquaintances) χ^2 (1, N = 277) = 10.87, p = .001, and using sarcasm to lighten truly frustrating situations (i.e., frustration diffusion) χ^2 (1, N = 277) = 4.96, p = .017. Also, those who self-rated

above the population mean for risk attraction also considered the sarcastic statements as more appropriate for both conditions of sarcastic situations (i.e., low-indirect) χ^2 (1, N = 249) = 7.26, p = .005, and high-direct χ^2 (1, N = 249) = 4.19, p = .027).

Table 6
Risk Attraction by Individual Marker and Situation Interpretation Task

	Low		High		Total Pop.
Scale	M	n	M	n	M
SSS					
General Sarcasm	4.63	146	5.16*	130	4.88
Face-saving	2.39	146	2.98**	130	2.67
Embarrassment Diffusion	3.10	146	3.27	130	3.18
Frustration Diffusion	3.76	146	4.26*	130	4.00
RA	19.33	155	18.77	122	19.01
IT Condition					
Low- Approp.	4.25	134	4.92**	115	4.58
Low-Positive	3.94	134	4.29	115	4.10
Low-Negative	3.70	134	3.57	115	3.63
High- Approp.	3.72	134	4.12*	115	3.91
High-Negative	3.18	134	3.13	115	3.16
High-Positive	4.39	134	4.72	115	4.55

Note: SSS = Sarcasm Self Survey with each sub-marker, RA = Relational Aggression Survey, and IT Condition = interpretation task by situation condition. * p < .05, ** p < .005.

Risk attraction has been observed to have a relationship with self-reported sarcasm use, interpretation, but not with relational aggression. Those with higher-risk attraction were more likely to use sarcasm in general and approve the use of sarcasm in all situation categories.

Research Question 4: Gender differences and the Interpretation Tasks. Table 7 details responses to the interpretation task by gender. For low-indirect conditions, males were more likely to consider the statement appropriate (M=4.85) in comparison to females (M=4.38) with χ^2 (1, N = 273) = 13.41, p = .001. For high-direct conditions a trend was observed; males

were more likely to approve the sarcastic statement (i.e., *M*=4.16) in comparison to females (i.e., *M*=3.75). Overall, the ratings for emotional intent (i.e., negative and positive) did not show significant differences between the genders. The appropriateness of sarcastic statements did show statistical differences with males being more approving of sarcastic statements for low-indirect situation in comparison with females.

Table 7
Gender by Sarcasm Interpretation Task Mean

	Appropriateness		Positive		Negative	
Condition	F	M	F	M	F	M
Low-Indirect	4.38	4.85**	4.04	4.20	3.71	3.50
Weather	4.62	5.42*	4.46	4.85	3.10	3.03
Trains	4.26	4.54*	3.34	3.27	4.55	4.46
Country	4.72	4.70	3.66	3.65	4.26	4.07
Pictures	4.01	4.54	3.79	3.86	3.78	3.64
Bowling	4.36	4.93	4.93	5.37	2.89	2.27
High-Direct	3.75	4.16	3.24	3.05	4.44	4.69
Garden	3.41	3.64	2.95	2.70	4.91	5.02
Presentation	3.30	4.08	2.88	2.74	4.81	4.89
Producer	4.03	3.95	4.16	3.75	3.48	4.10
Carpenter	4.10	4.61*	3.13	3.27	4.38	4.48
Computer	3.92	4.51*	3.06	2.80	4.59	4.93

Note: Low-Indirect Condition indicates low relational joins with the sarcasm indirectly targeted. High-Direct Condition indicates high relationship joints (i.e., adult sibling, long-time friend of 15 years, long-time friend) with the sarcasm directly targeted towards an individual in the situation. F=female, M=males. * $p < .05$. ** $p < .001$

When the appropriateness ratings for specific situations were compared between males and females a few relationships were observed. For example, the situation about the weather, χ^2 (1, N = 247) = 7.45, p = .006, trains, χ^2 (1, N = 246) = 5.14, p = .023, carpenter χ^2 (1, N = 247) = 4.44, p = .035, and the computer tech χ^2 (1, N = 247) = 4.85, p = .028 all showed relationships between gender and the appropriateness ratings. As observed in Table 7, males were more likely to consider the statements appropriate in comparison with females.

Table 8
Gender by Individual Marker and Situation Interpretation Task

	Males		Females		Total Pop.
	M	*n*	*M*	*n*	*M*
SSS					
General Sarcasm	4.91	107	4.85	165	4.89
Face-saving	2.84	107	2.54	165	2.67
Embarrassment Diffusion	3.40*	107	3.04	165	3.18
Frustration Diffusion	4.03	107	3.99	165	4.00
RA	16.60	107	16.10	166	16.35
RAS	23.38*	107	16.34	166	19.08
IT Conditions					
Low-Approp.	4.85**	97	4.38	150	4.56
Low-Positive	4.20	97	4.04	150	4.10
Low-Negative	3.50	97	3.72	150	3.63
High-Approp.	4.16	97	3.75	150	3.91
High-Negative	3.05	97	3.24	150	3.15
High-Positive	4.69	97	4.44	150	4.57

Note: SSS = Sarcasm Self Survey with each sub-marker, RA = Relational Aggression Survey, RAS = Risk Attraction Survey, and IT Conditions = interpretation task by condition. ***** $p<.05$, **$p<.001$

Table 8 details differences by gender for the SSS, relational aggression survey, risk attraction survey, and the interpretation task. A relationship between gender and the SSS sub-scale of embarrassment diffusion was observed with males (M =3.40) indicating they were more likely to use sarcasm to reduce positive emotion in positive situations using sarcasm in comparison with females (M = 3.04), χ^2 (1, N = 273) = 4.24, p = .03. There was an observed relationship between gender and risk attraction χ^2 (1, N = 273) = 29.42, p = .001. Males were more likely to state they were attracted to taking risks (M =23.38) while females were less likely to be attracted to risks (M =16.34). Also, males were more likely to approve sarcastic statements in low-indirect situations in comparison to females χ^2 (1, N = 273) = 13.41, p = .001.

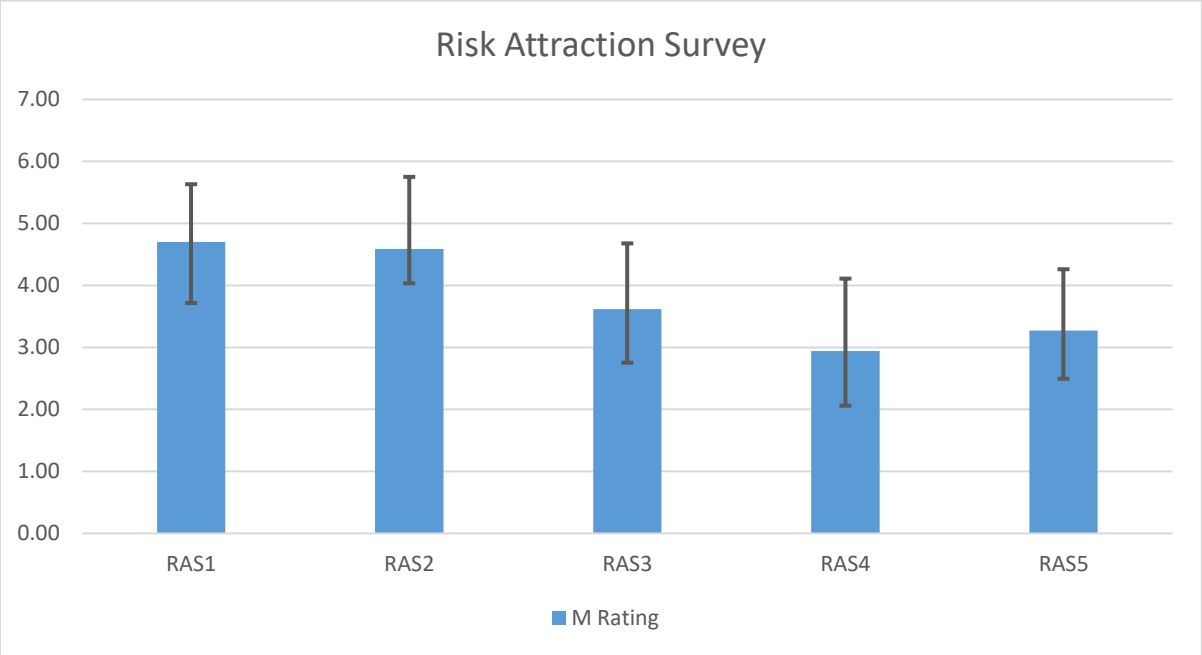

Figure 3. Risk Attraction Survey Results

Figure 3 shows the overall mean rating from the risk attraction survey for all 278 participants. Population differences were calculated by summing all answers to the questions so each participant would have a total composite score. The mean score for the entire population was calculated. If an individual's composite score was below the mean, they were considered to have low risk attraction. If they scored above the mean, they were considered to have high risk attraction. Figure 4 shows gender differences by each question presented on the measure. Males consistently self-rated taking more risks in comparison to females χ^2 (1, N = 273) = 29.42, p = .001.

A chi-square was run against each question on the risk attraction measure by gender to further investigate gender differences. If an individual self-reported greater than the observed mean they were recoded as having high risk attraction. If they self-rated lower than the observed mean, they were rated as low risk attraction. The recode was completed for each participant by question. Mean calculations for risk attraction by gender with standard deviation bars can be

seen in Figure 4. Males self-rated they were more attracted to risk in comparison to females. In addition, significant statistical differences were observed between the genders for each question as seen in Table 9. The strongest relationship was observed for questions relating to enjoying danger (RAS3) followed by driving a race car (RAS2), skydiving (RAS4), risk associated with having fun (RAS1), and lastly preferring unpredictable friends (RAS5). Risk attraction was the strongest relationship observed between the genders when compared to all other measures.

Table 9
Risk Attraction Significance by Gender

Question	χ^2	*p*
RAS1: Taking risks can be fun.	11.83	<.001
RAS2: I would like to drive a race car.	38.78	<.001
RAS3: I sometimes do things I know are dangerous just for fun.	40.59	<.001
RAS4: I have considered skydiving as a hobby.	21.61	<.001
RAS5: I prefer friends who are unpredictable.	9.55	<.002

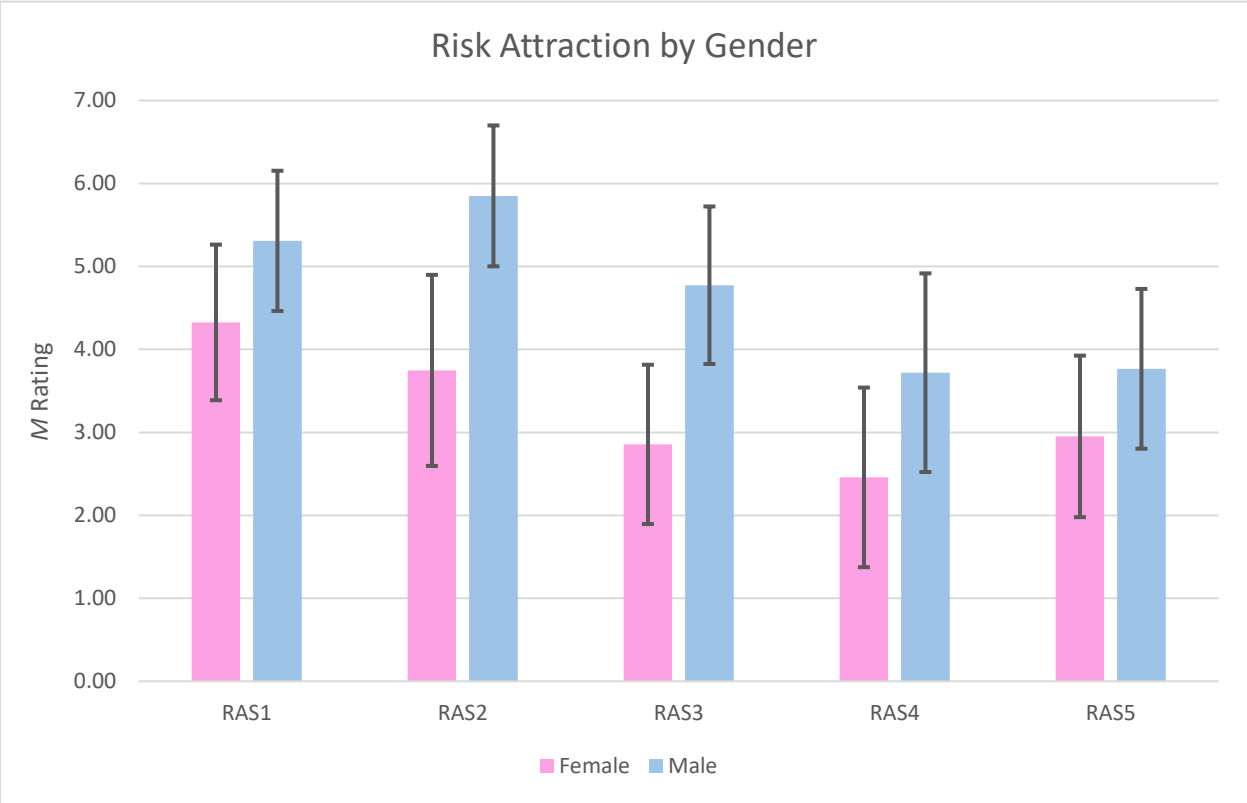

Figure 4. Risk Attraction by Gender.

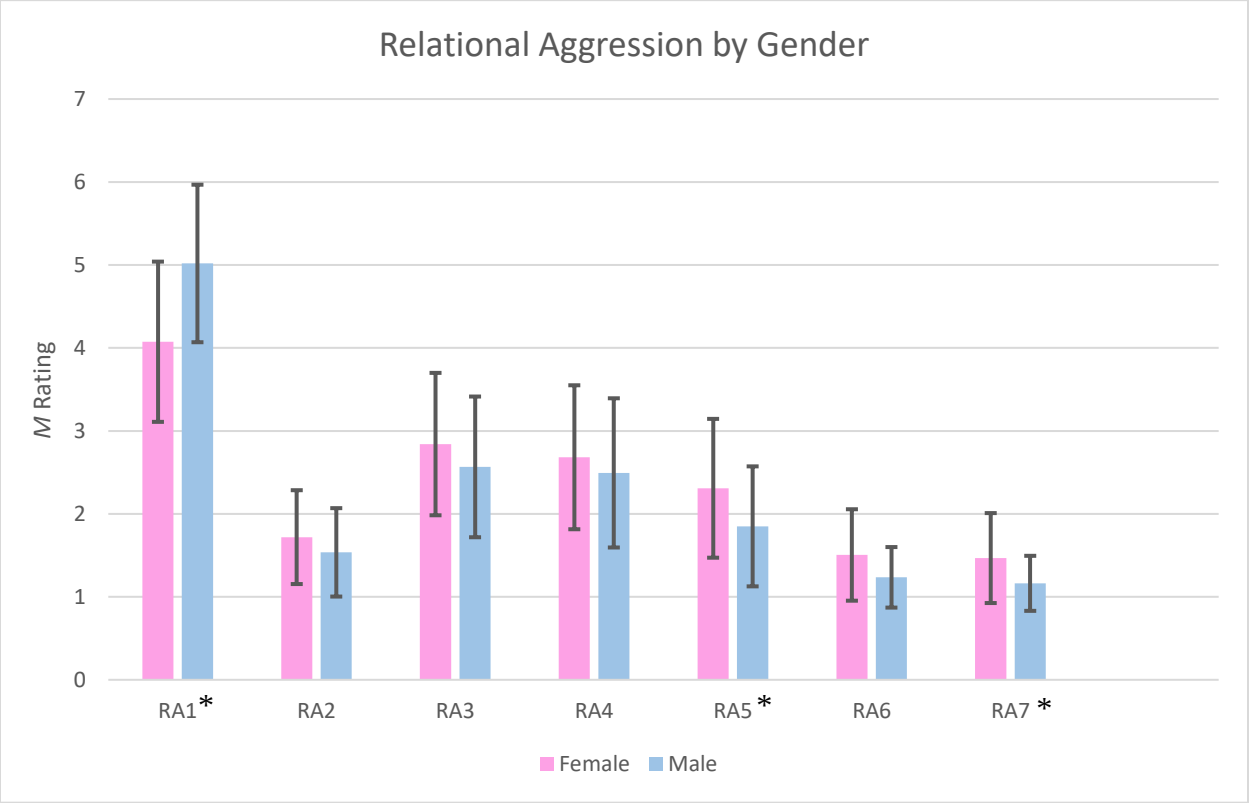

Figure 5. Relational Aggression by Gender

Note: *p<.05

Figure 5 shows the mean rating by gender for the relational aggression measure. A chi-square was run to determine if there were significant relationships between gender and high, or low relational aggression. As indicated with an asterisk in Figure 5, three of the seven question observed had statistically significant relationships with gender: RA1, χ^2 (1, N = 273) = 14.31, p = .001; RA5 χ^2 (1, N = 273) = 5.37, p = .021; RA7 χ^2 (1, N = 273) = 7.30, p = .007. The overall relational aggression composite score did not demonstrate significant differences between male and female participants. However, individual questions showed to have significant relationships (i.e., RA1, RA5, and RA7).

Summary of the Data Analysis

There were observed trends in the sarcastic situation dataset. Overall, situations where the sarcasm was light and indirectly targeted toward the individual were rated more positive than negative. Situations where the sarcasm was directed towards the individual in the situation and was more stinging were rated more negative and less positive.

As a group, the participants rated their sarcasm use lower in comparison to the original Ivanko et al. (2004) study. The sampled population as a whole rated themselves lower in their sarcasm use for 13 out of the 15 questions on the SSS scale. The biggest differences related to face-saving and embarrassment diffusion. The observed population was less likely to use sarcasm with new acquaintances and to reduce positive emotion in positive situations. Both groups used general sarcasm and frustration diffusion measures more frequently to the other sub-groups of sarcasm use (i.e., face-saving, and embarrassment diffusion). Overall, the sampled population and the Ivanko et al. (2004) population showed the same trends in the frequency of use for the different types of sarcasm in the SSS. Meaning, both populations used general sarcasm the most, followed by frustration diffusion, then face-saving, and lastly embarrassment diffusion. However, the lesser used face-saving and embarrassment diffusion sub-scales were used far less in the observed population in comparison with the Ivanko et al. (2004) population.

The mean for each sub-group on the SSS was calculated by sub-category. Participants who responded below the mean were placed in the low category while those with a score above the mean were placed in the high category. Each participant was given a low or high designation based on their responses for each sub-scale on the SSS. Next, a 2x2 chi-square was run for each sub-category of sarcasm. The calculations revealed, as seen in Table 5, embarrassment diffusion had the strongest relationship with how individuals interpretation of the sarcastic situations.

Those with high embarrassment diffusion were more likely to rate the low-indirect situations as more positive. Also, they were more likely to approve the high-direct situations while at the same time rating them less negative. This finding has a possible impact on how we understand the application of the hostile attribution bias, and how we interpret the application of the general sarcasm use framework.

The relational aggression survey was then completed by all participants. In general, they found the descriptors on the relational aggression measure as extremely uncharacteristic, somewhat uncharacteristic, or slightly uncharacteristic. The only question that was indicated as having any relatability was the first question; the likelihood of using the silent treatment when mad or angry with a peer. The sampled population did not find the example situations of relational aggression very relatable.

Based on their composite score, the population was split into two groups: high or low relational aggression. The mean was calculated for the entire population and those above the population mean were categorized as high, and those below the mean were categorized as low. The two groups were compared with a 2x2 chi-square analysis finding those with high relational aggression were more likely to use sarcasm to reduce negative emotion in a truly frustrating situation (i.e., frustration diffusion). Overall, the relationship between frustration diffusion on the SSS was the only observed relationship with the relational aggression survey. All the other surveys and sarcastic situations did not show a relationship.

Two groups were created based on responses collected on the risk attraction survey. A mean composite score was calculated for the risk attraction sampled population. Based on the mean, two different populations were established: those above the mean, and those below the

mean. Those above the mean were categorized having high risk attraction, and those below the mean were placed into the low risk attraction group.

Based on these two different groups, risk attraction showed several statically significant relationships with the SSS and the sarcasm interpretation task. As observed in Table 6, those with higher risk attraction also self-rated high in face-saving and frustration diffusion on the SSS. Meaning, those with high risk attraction were more likely to indicate they would use sarcasm in front of new acquaintances and when in truly aggravating situations. The same individuals also self-rated high appropriateness for both low-indirect and the high-direct sarcastic interpretation task. They were more likely to approve all applications of sarcasm use in the interpretation task.

There were observed relationships between gender and the SSS indicators, risk attraction, and the sarcasm interpretation task. Overall, there were 278 participants with 166 females, 107 males, and five individuals who declined to indicate their gender. Without the declines, that would be a 60.8 to 39.2, female to male ratio. The gender ratio at PCC was 62% female and 38% male (Pitt Community College, 2014). The sampled population was only 1.2 percentage points away from having the same gender ratio as the larger community college student population.

Overall, males were more likely to approve sarcastic statements in low-indirect statements in comparison with females. Males were also more likely to use sarcasm to decrease positivity while achieving accomplishment (i.e., embarrassment diffusion). The strongest difference was that males were much more likely to self-report their attraction to risk in comparison with females.

The composite score for relational aggression was not observed to have a significant difference with gender. However, three of the seven questions demonstrated to have a relationship with gender. Of the seven questions, males rated higher on question 1: using the silent treatment to hurt another person while females rated higher on question 3 and question 7 (i.e., excluding individuals in group activities, and stealing dating partners).

Overall, the sarcastic situations were found to induce sarcastic sentiment, the relational aggression measure did not show significant relationships, risk attraction appeared to have an influence on how individuals process sarcasm, and gender differences played a role when individuals used and processed sarcastic statements.

Chapter V Summary, Conclusions, and Recommendations

Summary Introduction

Processing of non-literal language was theorized to be dependent upon the context of the situation (Gibbs, 1986; Ivanko & Pexman, 2003; Lee & Katz, 1998; Pexman & Olineck, 2002), those engaging in the communication (Gibbs, 1986; Pexman & Zvaigzne, 2004), and individual differences such as gender (Colston & Lee, 2004), relational aggression (Blasko et al., 2005; Kazmerski et al., 2003; Mathieson et al., 2011), and risk attraction (Colston & Lee, 2004).

Conclusion and Summary by Hypothesis

Interpretation Task. The situations presented to participants used a formula designed to create a sarcastic meaning (Colston, 2000). The formula presented followed three fundamental steps: 1) an expectation was created, 2) an action or outcomes were presented, and 3) an incongruent/sarcastic statement was made. The situations were coded by the high or low level of relationship between the speaker and the listener/target, and if the statement was directly or indirectly targeted toward the listener (i.e., direct or indirect). This created two categories of situations listed as low relational links with indirectly targeted entities, and high relational links with direct targeted entities.

If the context hypothesis of relationships and the violation expectations hypothesis were true, there would be observed differences in the mean ratings for each sarcastic situation category. Findings found mean differences between the two categories of sarcastic situations: low-indirect and high direct situations. The results support both hypotheses suggesting relationship status, and the level of violated expectations affects how individuals interpret sarcastic statements. The appropriateness rating levels for high-direct situations were lower in comparison with the low-indirect statements. Also, there was an observed inverse interaction

between negative and positive ratings and low-indirect and high-direct situations. Simply stated, the greater the relationship link and directness involved in the situation the less positive, and the more negative the statement was perceived. The observed results supports both hypotheses stating sarcastic situations will be perceived differently depending on the closeness of those participating in the conversation, and the associated directness of the statement.

The SSS and the Interpretation Task. Individuals were asked to complete the SSS and then evaluate the appropriateness of sarcastic statements, and the intended emotional impact of the statement on the target person (i.e., negative and positive). The SSS and the sarcastic situations were analyzed individually and then compared to each other to observe any relationships between how individuals rate their sarcasm use and their subsequent sarcasm interpretations.

On the SSS, the sampled population did not rate themselves as sarcastic as the original sampled population. Thirteen out of the 15 questions were rated below the mean of the original Ivanko et al. (2004) population. Of the four sub-categories of the SSS, individuals were ranked either high or low, based on their responses. The high and low rankings for each individual was analyzed to gain a better understanding of each individual's reported sarcasm use. The two largest groups with the SSS were individuals who self-rated either above the mean on all four sub-categories, or fell below the mean for all four indicators. These two categories accounted for 34% of the population, or 97 of the 277 individuals who completed the SSS. Meaning, 34% of the population surveys either scored above the mean on all indicators, or below on all the indicators for the SSS.

There was only one significant relationship observed between the two populations and how they interpreted the sarcastic situations. Those who were in the above the mean category

overwhelmingly approved the sarcastic situations in comparison with those who were in the below the mean category. All other forms of sarcasm use did not demonstrate a significant relationship. However when reviewing the larger population, additional relationships were observed within the sub-scales of the SSS. Those who rated high on the embarrassment diffusion sub-scale (i.e., using sarcasm to reduce positive emotions in positive situations) rated more positivity when interpreting any sarcastic situation. The high embarrassment diffusion group was less likely to give negative ratings in comparison with those who scored below the mean on embarrassment diffusion. So, those who use sarcasm to reduce positivity in positive situations were more likely to see positivity in sarcastic situations, and less likely to see negativity. That seems counter intuitive. One might think an individual who uses sarcasm to reduce positive emotion in a positive situation would be less likely to superimpose positive emotions into an ambiguous situation. However, the hostile attribution bias framework states our cultural schema/perspective is applied when we are presented with ambiguous situations. Meaning, if an individual was conditioned to associate sarcastic statements with positive emotions, then they would be more likely to recall positive emotions when asked to interpret ambiguous sarcastic situations.

This association is an interesting relationship. The low-indirect situations did not appear to have a relationship with embarrassment diffusion. The mean appropriateness scores on low-indirect situations were equal for both high and low embarrassment diffusion participants. However, there was a significant relationship between low and high embarrassment diffusion participants when interpreting high-direct situations. The high embarrassment diffusion participants were more likely to approve the situation and rate the situation as less negative, and a trend was observed to rate the truly negative situation as more positive. Therefore, a high

embarrassment diffusion outlook sees a glass half full situation when presented with truly stinging sarcasm. The findings supports the SSS framework of sarcasm use by observing predicted interactions between the SSS and the interpretation task, the hostile attribution bias of relational aggression schema by observing the application of increased positive intent to stinging sarcastic situations, and the three step formula to create sarcasm situations through the observed appropriateness ratings of all situations.

Relational Aggression and the Interpretation Task. A hypothesis was established differentiating those with high and low relational aggression would view ambiguous sarcastic statements differently (Colston & Lee, 2004) based on their individual hostile attribution bias (Mathieson et al., 2011). The hostile attribution bias predicts a person with high relational aggression would superimpose their cultural filter on the situation when the intent of the speaker was ambiguous. If the hypothesis was true, a higher relational aggressive individual would perceive the sarcastic situations differently than a person with lower relationally aggressive behaviors. The current research did not support the hostile relational bias theory, or the hypothesis linking relational aggression with sarcasm interpretation using the relational aggression survey method. Those with higher relational aggression did not approve or interpret the sarcastic situations differently than those with lower self-reported relational aggression. Both populations were equal in their appropriateness and ratings of the sarcastic situations.

Previous research conducted by Blasko et al. (2005) used a relational aggression measure that defined “romantic relationship” in place of the more traditional verbiage of “peer” when rating relational aggressive actions. One hypothesis was the Blasko et al. (2005) study did not find a link between relational aggression and sarcasm due to the specific usage of the term “romantic relationship.” The relational aggression measure used in the current study used the

term “peer” in comparison with “romantic partner.” However, the current research findings did not observe a relationship between relational aggression and the interpretation task of the sarcastic situations. The romantic relationship hypothesis methodology having an effect on individuals self-rate their relational aggressive behaviors was not supported.

The relational aggression survey used in the current study was a self-report survey from Loudin et al. (2003). However, the questions used in Loudin et al. (2003) research were originally developed from an observational study where teachers observed third grade students and marked every time a student exhibited a relationally aggressive behavior (Grotpeter & Crick, 1996). Loudin et al. (2003) adapted the Grotpeter & Crick (1996) observational indicator to create a relational aggression survey. The Loudin et al. (2003) indicated the self-rating survey may not be as effective because individuals may not have the ability to perceive their actions as being relationally aggressive. At times, relationally aggressive actions were described as covert from the first person perspective. Therefore, individuals may not be capable of objectively judging if their actions were relationally aggressive. This was noted as a limitation to the research study. This methodology hindrance limited the current research study in linking relationally aggressive individuals with sarcasm use and interpretation. Yes, there was a relationship between those with high and low relational aggression indicating difference in their measured embarrassment diffusion. However, there was not enough evidence to fully support the use of the Loudin et al. (2003) relational aggression measure in future studies. Additional research needs to be conducted to ensure the observed relationship between relational aggression and embarrassment diffusion was not the result of Type 1 error of hypothesis testing.

Risk Attraction and the Interpretation Task. Risk attraction has been one of the cited causes for males and females using and interpreting sarcasm differently (Colston & Lee, 2004).

The risk attraction hypothesis was developed because males were more likely to take risks and sarcasm was seen as a form of taking linguistic risk. The risk associated with sarcasm was due to the possibility of the statement being misinterpreted. Further research concluded males use sarcasm more frequently and for different reasons than females; also, research identified an indirect link suggesting males used sarcasm as a form of risk taking (Colston & Lee, 2004). However, the studies did not directly link sarcasm use and interpretation with a risk attraction measures.

The current research found a statistically significant relationship between gender and risk attraction; males were more likely to self-rate higher levels of risk attraction in comparison with females. Also, risk attraction showed a statistically significant relationship with the interpretation task of the sarcastic situations. Those with high self-rated risk attraction were more likely to approve sarcastic statements in all conditions of the sarcasm interpretation task. Therefore, risk attraction had a strong relationship with how we approve sarcastic statements.

Also, there was a relationship between risk taking and general sarcasm use as collected by the SSS. Those who self-reported having high risk attraction tendencies also rated using gender sarcasm, face-saving, and frustration diffusion more in comparison with those who rated lower in risk attraction. Therefore, there was a strong relationship between self-reported risk attraction and how individuals report their frequency and use of sarcastic statements. The observed results were in support of risk attraction playing a factor in how frequent we use, and interpret sarcasm.

Gender, Individual Differences, and the Interpretation Task. Significant relationships were observed when comparing gender and sarcasm use, risk attraction, relational aggression, and differences when approving and interpreting sarcastic situations. The strength

and number of statistically significant relationships supports there were differences between males and females when interpreting sarcastic situations.

In general, males were more likely to approve low-indirect sarcastic situations. These were situations where the relationship status between those communicating was low, and the sarcastic statement was not directly targeted toward the individual in the situation. The high-direct situations did not show a statistically significant relationship between the genders. They approved the situations equally. However, within the high-direct category there were two situations, the carpenter and computer examples, that showed a statistically significant difference between the genders. The Colston and Lee (2004) study predicted individuals were more likely to approve situations observed in our day-to-day basis. Basically, we see the situations as normal and therefore, we are more likely to approve the situation. The low-indirect situations have a higher likelihood of being misunderstood because the variables creating the sarcastic comment were not as strong as the high-direct situations. Males giving the low-indirect statements greater appropriateness ratings supports Colston and Lee's (2004) hypothesis that males use sarcasm differently than females (i.e., using sarcasm in riskier linguistically speaking situations-more likely to be misunderstood). Their hypothesis was supported due to observations of males; they were more likely to use sarcasm in situations where there was more risk of misinterpretation.

Gender did not appear to have an observed relationship with how positive or negative the statements were perceived. Therefore, Colston and Lee's (2004) hypothesis of emotional intent could not be supported. There were two hypotheses made by Colston and Lee (2004) that stated 1) females are nurturers and would use sarcasm to increase bonds between individuals, and 2) when females use sarcasm strategically as a linguistic weapon in comparison to males. A

female's use of sarcasm can be seen as the exact opposite from males. Males use sarcasm more frequently and when it is more likely to be misunderstood, and females use it to build relationship bonds or as a social weapon. However, the dataset did not find statistically significant relationship differences in the emotional intent of sarcastic statements.

Overall, the observed sample population did not rate as sarcastic as the original Ivanko et al. (2004) population. Yet, gender differences were still observed between their self-reported uses of sarcasm on the SSS. Males (M=3.40) were more likely to use sarcasm to reduce the amount of positive emotions associated with positive situations in comparison with females (M=3.04). This form of sarcasm use is called embarrassment diffusion. This form was the least likely used form of sarcasm in comparison to the other sarcastic sub-scales (i.e., to reduce negative emotions in truly annoying situations). This difference supports the general hypothesis that males and females use sarcasm differently. More specifically, males were more likely to use sarcasm in situations where it was least likely to be used (i.e., reduce positive emotions in positive situations).

The strongest relationship observed was the interplay between risk attraction and gender. Males (M=23.38) were much more likely to state they were attracted to risk in comparison to females (M=16.34). This increased risk attraction supports Colston and Lee's (2004) hypothesis that males were more likely to take risks and therefore, approve and use sarcasm more frequently.

Overall Conclusions

Gender, risk attraction, and self-reported sarcasm use all have a relationship with how individuals interpret sarcasm. Gender had a direct influence on how individuals perceived their own use of sarcasm and how others used sarcasm. Males were more likely to use sarcasm when

the variables were not as strong. In other words, when the use of a sarcastic statement would be riskier. The strength of risk attraction was more powerful than the gender variable. The differences between risk attraction and gender indicates the variables of risk should be taken into account more in comparison to gender. Therefore, risk attraction should be considered to have a stronger relationship with how we use and interpret sarcastic statements in comparison with our gender. Furthermore, risk attraction had even stronger relationships than how individuals rated their sarcasm use. This finding draws the conclusion an individual's attraction to risk had a stronger relationship with how we use and interpret sarcasm in comparison with gender, and the self-reported use of sarcasm.

Overall, an individual's self-reported use of sarcasm can be used to indicate whether they approve of sarcastic statements, in what type of situations, and for what purpose. Colston and Lee's (2004) hypothesis stating gender differences in interpreting and the utilization of sarcastic statements was supported. However, additional research needs to be completed to further investigate the relationship females and their use of sarcasm.

Relational aggression being directly linked via self-reported indicators was not supported. It was found different methods of research need to be completed. More specifically, observational research methods need to be utilized to accurately measure an individual's relationally aggressive tendencies. Blasko et al. (2005) and the current research did not find significant relationships between relational aggression and sarcasm use and interpretation.

It is recommended to continue to use the SSS while researching individual differences and sarcasm theories. It is also recommended to continue to develop sarcastic situations using the three step process of sarcastic usage. Additional development of a self-rated relational aggression survey needs to be developed. Also, it is not recommended to judge others on their

sarcasm use and then infer their relational aggression tendencies. The intricacies of sarcasm use and relational aggression still needs further refinement before direct conclusions can be inferred upon sarcasm use. In addition, gender and risk attraction measures should be collected when researching sarcasm frequency and interpretation due to the intricacies of the relationships.

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Appendices

Appendix A: Sarcasm Self-Report Scale

Instructions: Using 7 point scale, indicate how uncharacteristic or characteristic each of the following statements is in describing you (1 being extremely uncharacteristic, 2 somewhat uncharacteristic, 3 slightly uncharacteristic, 4 neither uncharacteristic nor characteristic, 5 slightly characteristic, 6 being somewhat characteristic, 7 being extremely characteristic). Place your rating in the box to the left of the statement.

Extremely Uncharacteristic						**Extremely Characteristic**
1	2	3	4	5	6	7

1. ___How sarcastic do you think you are?
2. ___How likely are you to use sarcasm with someone you just met?
3. ___How likely are you to use sarcasm when insulting someone?
4. ___How likely are you to use sarcasm with a best friend?
5. ___How sarcastic would your friends say you are?
6. ___How likely are you to use sarcasm with a family member?
7. ___How likely are you to use sarcasm with a new colleague at work?
8. ___How likely are you to use sarcasm while complimenting someone?
9. ___How often do you make sarcastic statements during daily interactions?
10. ___How likely are you to understand another person's sarcasm?

How likely are you to make a sarcastic statement in the following situations?

Unlikely						**Likely**
1	2	3	4	5	6	7

11. ___You and your roommate have a fight over how to share the household chores.
12. ___You score the winning point in the final basketball game of the season.
13. ___You find out that you made a huge mistake on the assignment you just handed in.
14. ___You are in a mile long line at the grocery store, waiting to pay for a prescription.
15. ___You got engaged over the weekend, and you're telling your friends about it over coffee.
16. ___You got a big promotion at work. You are having dinner with your family to celebrate the achievement.
17. ___You have to be at work in 15 minutes and your friend locked your keys in the car.

Appendix B: Relational Aggression Survey

Think about your interpersonal relationships and your interactions with your peers. A peer can be someone who is a good friend, a classmate, an acquaintance or a dating partner. In your interactions with your peers, indicate in a 7 point scale how uncharacteristic or characteristic each of the following statements is in describing you (1 being extremely uncharacteristic, 2 somewhat uncharacteristic, 3 slightly uncharacteristic, 4 neither uncharacteristic nor characteristic, 5 slightly characteristic, 6 being somewhat characteristic, 7 being extremely characteristic). Place your rating in the box to the left of the statement.

Extremely Uncharacteristic						**Extremely Characteristic**
1	2	3	4	5	6	7

1.___When angry or mad at a peer how likely are you to give him/her the "silent treatment?"
2.___When angry or mad at a peer how likely are you to try to damage his/her reputation by passing on negative information?
3.___When angry or mad at a peer how likely are you to try to retaliate by excluding him/her from group activities?
4.___How likely are you to intentionally ignore a peer, until s/he agrees to do something you want them to do?
5.___How likely are you to make it clear to a peer that you will think less of him/her unless they do what you want them to do?
6.___How likely are you to threaten to share private information with others in order to get a peer to comply with your wishes?
7.___When angry or mad at a same-sex peer, how likely are you to try and steal that person's dating partner to get back at them?

Appendix C: Risk Attraction Survey

Instructions: Using 7 point scale, indicate how uncharacteristic or characteristic each of the following statements is in describing you (1 being extremely uncharacteristic, 2 somewhat uncharacteristic, 3 slightly uncharacteristic, 4 neither uncharacteristic nor characteristic, 5 slightly characteristic, 6 being somewhat characteristic, 7 being extremely characteristic). Place your rating in the box to the left of the statement.

Extremely Uncharacteristic						**Extremely Characteristic**
1	2	3	4	5	6	7

1) ___Taking risks can be fun.

2) ___I would like to drive a race car.

3) ___I sometimes do things I know are dangerous just for fun.

4) ___I have considered skydiving as a hobby.

5) ___I prefer friends who are unpredictable.

Appendix D: Direct and Indirect Sarcastic Situations

On a scale from 1 to 7 rate your level of disagreement or agreement with the three categories of each scenario, where 1 indicates your strong disagreement with the category and 7 indicates your strong agreement with the category. For example, if you strongly disagree that the scenario was appropriate, then indicate 1. If you strongly agree the statement was appropriate indicate a 7. Similarly, if you strongly disagree negative emotion was intended, then indicate 1. If you strongly agree that negative emotion was intended indicate a 7. Likewise, if you strongly disagree positive emotion was intended, then indicate 1. If you strongly agree positive emotion was intended indicate a 7.

1) David and his best friend Jane planned to go hiking one morning because the weathercaster predicted a sunny day. When David arrived to pick Jane up he was pelted with rain. Jane answered the door and he greeted her with, “This weather is certainly beautiful!”

	Strongly Disagree						Strongly Agree
Appropriate	1	2	3	4	5	6	7
Positive emotion intended	1	2	3	4	5	6	7
Negative emotion intended	1	2	3	4	5	6	7

2) While in France visiting his long-time pen-pal Jonathon, Jason continually heard rave reviews for the European train system. So when Jonathon decided to take Jason to Germany they went by train. The ride was bumpy, uncomfortable, and slow. Jason smiled at Jonathon, “I’m so impressed with the European train system.”

	Strongly Disagree						Strongly Agree
Appropriate	1	2	3	4	5	6	7
Positive emotion intended	1	2	3	4	5	6	7
Negative emotion intended	1	2	3	4	5	6	7

3) The Jones had dreamed for years of moving to the country and were eventually able to do so. They built a house in a secluded area but they could still hear any traffic from the nearby highway. Mrs. Jones told her husband, “It’s so peaceful living in the country.”

	Strongly Disagree						Strongly Agree
Appropriate	1	2	3	4	5	6	7
Positive emotion intended	1	2	3	4	5	6	7
Negative emotion intended	1	2	3	4	5	6	7

4) Martha was helping her six-year-old son, William, prepare for picture-day at school. She dressed him and combed his hair, holding it in place with hairspray and gel. When the pictures came back from school two weeks later, Martha saw that William's hair looked nothing like she had fixed it and she said to William, "I've never seen your hair look so good."

	Strongly Disagree						Strongly Agree
Appropriate	1	2	3	4	5	6	7
Positive emotion intended	1	2	3	4	5	6	7
Negative emotion intended	1	2	3	4	5	6	7

5) Fred was the best bowler in his league because he always practiced. In the last game, Fred threw all strikes. His friend Roger said, "You really need to practice."

	Strongly Disagree						Strongly Agree
Appropriate	1	2	3	4	5	6	7
Positive emotion intended	1	2	3	4	5	6	7
Negative emotion intended	1	2	3	4	5	6	7

6) Violet, who was the long-time president of the garden club, always bragged about her green thumb. For her birthday, the club gave Violet a rare orchid. Two weeks later, Marie, the club's vice president, visited Violet and saw that the orchid was turning black. Marie said, "You're the best gardener I've seen ever."

	Strongly Disagree						Strongly Agree
Appropriate	1	2	3	4	5	6	7
Positive emotion intended	1	2	3	4	5	6	7
Negative emotion intended	1	2	3	4	5	6	7

7) Steve liked to boast about his presentations skills often to Anne. Steve and his close friend Anne were going together to a presentation which Steve was the main speaker. They entered the conference room and Steve eventually started his presentation. Steve then gave a dry and boring presentation where people left during the middle of the allotted time. After the presentation was over Anne said to Steve, "Your presentation skills are thrilling."

	Strongly Disagree						Strongly Agree
Appropriate	1	2	3	4	5	6	7
Positive emotion intended	1	2	3	4	5	6	7
Negative emotion intended	1	2	3	4	5	6	7

8) Ed just graduated from film school and continually bragged about his production skills and his graduation project to Bob his best friend of 15 years. Ed invited Bob to a private screening of his film that only critics were attending. When the credits rolled at the end, the room was full of uneasy silence from the critics. Bob applauded and whispered to Ed, “You are a great producer.”

	Strongly Disagree						Strongly Agree
Appropriate	1	2	3	4	5	6	7
Positive emotion intended	1	2	3	4	5	6	7
Negative emotion intended	1	2	3	4	5	6	7

9) Ashley, a carpenter with her own shop, was hired by her brother Tim to build new cabinets for his kitchen. Ashley told Tim that she had a large selection of styles from which to choose. She cited several online review sites attesting to her variety of cabinets. A day later, she proceeded to show him only one option of cabinets for which there were no color variations available. Tim looked them over and commented, “You sure have a wide selection to choose from.”

	Strongly Disagree						Strongly Agree
Appropriate	1	2	3	4	5	6	7
Positive emotion intended	1	2	3	4	5	6	7
Negative emotion intended	1	2	3	4	5	6	7

10) Janet, who was having problems with her computer, called her long-time friend Alex for help who earned a 4 year degree in computer support and technical troubleshooting. Alex promised he would have it fixed in three minutes flat. Alex looked at her computer and still hadn’t fixed it several hours later. Janet told Alex, “You sure know a lot about computers.”

	Strongly Disagree						Strongly Agree
Appropriate	1	2	3	4	5	6	7
Positive emotion intended	1	2	3	4	5	6	7
Negative emotion intended	1	2	3	4	5	6	7

Appendix E: Demographics Questionnaire

Indicate your gender with an “X” left of the appropriate category:

___ Female
___ Male
___ Decline

Appendix F: Informed Consent

Investigator: Andrew Walker, MSA Program, walke1ae@cmich.edu

Faculty Monitor: Edward Lamie, lamie1el@cmich.edu

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Introductory Statement
My name is Andrew Walker and I am a graduate student at Central Michigan University. As part of my research, I am examining the effect of personality, and gender differences when interpreting sarcastic statements. Data collected will be completed via paper and pencil.

What is the purpose of this study?
The purpose of this study is to research how individual personality differences effect how we use and interpret sarcasm.

What will I do in this study? You will be completing a series of personality, aggression, and a sarcasm-marker. Next, you will be interpreting various situations and providing a rating for each situation. All information will be kept confidential and individual data points will not be made public or be accessible to anyone outside the research team listed on this document. Please sent the completed surveys through intercampus mail to Andrew Walker CFG-170.

How long will it take to do this study? The surveys will take about one hour to complete.

Are there any risks if participating in the study?
Participation is voluntary and no risk or discomfort is anticipated. Please note, you must be 18 years of age to participate in the study.

What are the benefits of participating in the study?|
The benefits of participating in the study is knowing you supported the further progresses our understanding of non-literal language. If you would like a summary copy of this study please send an email to walke1ae@cmich.edu.

Will anyone know what I do or say in the study (Confidentiality)?
All surveys are anonymous. The primary and faculty monitor will have access to the data.

Will I receive any compensation for participation?
There is no compensation or fee to be paid to voluntary participants. Those who are participating as an activity associated with Pitt Community College may receive credit towards the completion of a course. See your instructor for the amount of credit associated with your participation.

Who can I contact for information about this research study?
Andrew Walker, walke1ae@cmich.edu, OR Edward Lamie, lamie1el@cmich.edu. Please note that if you are not satisfied with the manner in which this study is being conducted, you may report (anonymously if you so choose) any complaints to the MSA Program by calling 989-774-6525 or addressing a letter to the MSA Program, Rowe 222, Central Michigan University, Mt. Pleasant, MI 48859.