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CONFORMING TO MISINFORMATION: AN EXPLORATION OF ATTRACTIVENESS
AND CONFIDENCE

by

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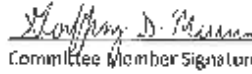
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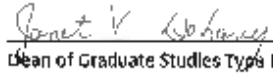
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ABSTRACT

CONFORMING TO MISINFORMATION: AN EXPLORATION OF ATTRACTIVENESS AND CONFIDENCE

Jacob Joseph-David

Witness testimony is a key factor used when convicting criminals, yet these testimonies are not always completely accurate. Often times, witnesses use the time after the crime to discuss the specifics of the crime with the other co-witnesses. This post event information (PEI), when inaccurate, can lead to the distribution of misinformation among the witnesses. It is clear that misleading PEI is one of the leading causes for conformity to false memories in witnesses. The current study focuses on the effect of two social factors, confidence and attractiveness, on conformity to misinformation. Participants viewed a video of a crime taking place, followed by one of four videos of a co-witness's memory of that crime with 10 pieces of misinformation. After the completion of both videos the participants' memory was tested using a cued recall memory test. The four videos featured an actress dressed attractively or unattractively, and she spoke confidently or unconfidently. Participants conformed more and had more confidence in their answers when information was presented by an attractive witness. Additionally, participants had more accurate memories when the PEI was presented by a confident witness, they also had higher confidence in their correct answers.

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Chapter 1:

Introduction

Past research has shown that the majority of crimes have multiple witnesses, and those witnesses have a tendency to speak with each other about the crime (Paterson & Kemp, 2006; Skagerberger & Wright, 2008). Although counterintuitive, co-witness talk has shown to produce negative effects on memory accuracy in later recall of the specific event (Gabbert, Memon, Alan, & Wright, 2004; Goodwin, Kukucka, & Hawks, 2013; Ost, Ghonouie, Cook, & Vrij, 2008; Paterson & Kemp, 2006; Skagerberg & Wright, 2008; Wright, Self, & Justice, 2008). Researchers have found that one of the main factors that contributes to reduction in accuracy of memory recall is the presentation of post-event information (PEI); (Gabbert, Memon, & Wright, 2007; Wright, Self, & Justice, 2000). Witnesses often will use the time after a crime to speak with other witnesses; this time is generally used to discuss the details of the crime that had just taken place (e.g., the appearance of the perpetrator, weapons used, etc.). The information that is discussed after the crime is called post event information (PEI), which can be one of the largest factors of conformity to false information in co-witness discussion.

In order to understand the effect of PEI and its contribution to the altering or reinforcement of a memory in co-witness discussion, a large amount of research examining the different variables that may or may not aid in memory conformity has been compiled. This thesis seeks to further explore two variables that may affect a witness's likelihood of memory conformity in an eyewitness paradigm: Confidence and attractiveness of the co-witness. There have been a handful of experiments pertaining to the manipulation of

confidence in co-witness discussions, yet varying attractiveness of a witness has not been examined as an influential factor in memory conformity. The relationship between these two social factors has been shown to be positively correlated in perception and stereotype research (Dion, Berchield, & Walster, 1972; Eagly, Ashmore, Makjani, & Long, 1991; Frieze, Olson, & Russell, 1991; Moore, Graziano, & Millar, 1987). Another goal of this proposal is to understand how closely related attractiveness and confidence are, and if the combination of the two strengthens memory conformity in eyewitnesses.

Prevalence of Co-Witness Discussion

Until recently, there have been only a few researchers who have actually explored the amount of co-witness discussion taking place at a real crime scene (Paterson & Kemp, 2006; Skagerberg & Wright, 2008). Paterson and Kemp surveyed 773 undergraduate students to determine the amount of co-witness talk that is present at a crime scene. Participants were screened using a survey asking if they had been a witness to a serious crime in the past year. Seventy-five percent of the original 773 respondents reported they had recently witnessed a serious crime; of that 75%, 86% of the participants indicated that at least one other witness was present (with a mean of 6.77 witnesses present). A follow-up survey was given to 60 of the original 773 participants who reported the presence of other witnesses; this survey further investigated the amount of co-witness discussion and the depth of that discussion. Of the 60 participants, 63% reported immediately speaking to another following the crime and 86% of participants reported engaging in co-witness discussion. Importantly, when questioned on why they spoke with other witnesses after the crime had taken place, 44% indicated that their

purpose for discussing the crime was to provide information about the crime to other witnesses.

Skagerberg and Wright (2008) also examined the frequency of co-witness discussion, as well as the reason for such discussion. They surveyed 60 participants from the Force Identification Unit in Brighton (United Kingdom) about the details of the crime they witnessed, co-witness discussion, and the reason for the discussion. The results showed that 87% of witnesses had another witness present (with a mean of 4.02 witnesses), and 50% of participants reported discussing the crime with another witness after the fact. Like Paterson and Kemp (2006), results showed that around half of the participants reported the main reason for discussing the crime was to establish the general details. Also, 39% spoke with other witnesses to establish details about the suspect. Notably, the largest reason for discussing the crime was again to establish the general details of the crime.

Effects of Co-Witness Discussion

Wright et al. (2000) established three different types of PEI that a witness could encounter. The first is concerned with the way a question about the crime is presented. Multiple convictions have appeared due to the way an interviewer frames a question to the witness; this type of PEI is seen most prevalently in cases when a child is questioned (Wright et al., 2000). The second PEI comes about during a re-creation or re-description of the crime. The third is established when new information about the crime is presented by another person or witness. Wright et al. focused on the creation of misinformation through the third type of

PEI, co-witness discussion. Forty participants were shown a series of 21 color pictures depicting a scene in which two men are robbed at a pool hall. Participants were randomly assigned to dyads. Each saw the same sequence of events except for one single picture. One participant witnessed the thief with another woman at the beginning of the sequence, the other saw her by herself. After viewing each picture for 5 seconds, participants answered a series of questions about the event. The questionnaire consisted of 16 true or false statements and assessed how confident they were about their answers. Following this procedure the dyad was brought together and was told to discuss the event that was portrayed. After a short filler task, both participants completed the same 16-item questionnaire. Results showed that 15 of the 19 pairs conformed to their partner's memory of an accomplice being present; half saying she was present when there was indeed only one person was present. Also, confidence in conformed memories was higher when the accomplice was not present, compared to when the accomplice was present.

Gabbert et al. (2004) compared the difference between a socially-biased confederate (simulating a real-world co-witness discussion) and a biased narrative (recreating the procedure used in most laboratories for co-witness discussion). Participants viewed a short video clip in which a video store was robbed; one group of participants watched alone (biased-narrative) and the other watched with a biased-confederate (socially-biased). The biased-narrative group was presented with a narrative of the crime with four misleading items. The biased-confederate group discussed the video together and the confederate was trained in misleading the participant on those same four items of misinformation. Gabbert et

al. found that the socially-biased misinformation was more likely to produce memory conformity compared to the narrative-based misinformation. Gabbert et al. concluded that the actual communication with another witness creates social interaction that influences the amount of conformity to misinformation. Both Gabbert et al. and Wright et al. (2000) demonstrated the processes in which memory conformity can take place through co-witness discussion. The evidence in both studies showed that social interaction and discussion of an event can easily allow misinformation to become present in a later recall.

Effects of Confidence

Confidence has been shown to waiver when manipulated along with misleading information in multiple studies (Wright et al., 2000) and has been identified as a perceived predictor for accuracy (Goodwin et al., 2013; Ost et al., 2008). Gabbert et al. (2007) altered perceived confidence of participants by telling each that they had witnessed a group of four pictures for half as long or twice as long as their partner, presuming that confidence would be higher for those who “saw” it for twice as long compared to those who “saw” it for half as long. Each participant viewed the same four pictures, but each had a minor differences store. After viewing the pictures, the dyad returned to discuss and recall the pictures. Following the conversation participants were separated and performed an individual free recall test. Participants in the “half as long group” were more likely to conform to the information presented by their partner. The belief of having less time led the participants to perceive their own memory as less accurate and presumably less confident in what they initially recalled.

This effect is more interesting when noting that researchers did not directly manipulate confidence.

Ost et al. (2008) introduced confederates into the experimental design; researchers believed that there would be an added social psychological process to account for conformity to misleading information. Participants were placed into either a group of one or three confederates; these confederates were then assigned to a high or low confidence group. Each participant and the confederates viewed a 37 second video of a mugging, followed by a filler task. After the completion of the filler task the participants and the confederates were asked to answer eight questions. Confederates in both levels answered four questions incorrectly and four questions correctly. After each answer every person in the group stated their confidence in the answer they gave on a 7-point scale. Confident confederates always rated their confidence at least a 6-7, non-confident confederates rated their confidence a 1-2.

Results showed that when the confederates answered the question correctly the participants also answered it correctly 93.75% of the time, with a mean confidence level of 5.20 (Ost et al, 2007). In addition, participants answered the question incorrectly 62.92% of the time if the confederate(s) answered incorrectly first. Finally, participants who did conform to misleading information reported higher levels of confidence for the questions answered incorrectly.

Using the established variable of high and low confidence by Ost et al. (2008), Goodwin et al. (2013) further examined the effects of confidence on memory conformity.

Unlike Ost et al. (2008), where all participants answered after hearing the confederate, two groups were established: one in which the confederates answered the questions first then followed by the participant and the other where the participant answered first. In essence, Goodwin et al. created a control group; those participants who answer first should not have any added influence from the confederate when answering the cued recall questions. Participants viewed a slide show in which the pictured depicted a criminal entering a store, stealing a few items, speaking with someone, and leaving the store. After watching the slide show each participant completed a 24-item cued recall test with the confederate. The confederate answered incorrectly for six predetermined questions. Participants and confederates were asked to rate their confidence after each answer; here participants either received high or low confidence from the confederate in a manner similar to that done by Ost et al. Following the cued recall test, the participants and confederate were separated and asked to complete an individual free recall report of the event they had witnessed.

Goodwin et al. (2013) showed that there was indeed a difference between the co-witness influence groups in the cued recall test; participants who answered after the confederate had conformed to the misleading PEI significantly more than those who answered before. Consistent with the results found by Ost et al. (2008), participants conformed to misleading information significantly more in the cued recall when it was presented by a confident confederate. The participants were asked to give a level of confidence following each answer; a mean score for confidence was calculated as a dependent variable. Participants who were placed with a high confidence confederate had

significantly higher mean confidence than those placed with a low confidence confederate, reflecting a more confident in those conformed memories when placed with another witness who has high confidence in their memories.

These studies demonstrate that confidence has an effect on co-witness discussion and memory conformity to true and false PEI. Gabbert et al. (2007) illustrated that a mere suggestion that another witness may have seen the crime longer than participants decreased the participants' confidence, thus making that witness more susceptible to memory conformity during co-witness discussion. Ost et al. (2008) provided one of the first experiments to truly manipulate confidence in a co-witness discussion and found that participants were more likely to conform when the confederate is confident in their recall of the event. Yet, in each condition the participant was made to answer the question and state their confidence after the confederates. In addition, participants were not given a free recall test to truly test if the confidence measure worked or if participants were just succumbing to social pressures of the confederates. Participants were more likely to conform to misleading PEI in the cued recall test with a confederate (Goodwin et al., 2013; Ost et al., 2008) yet when asked to complete a free recall without a confederate present the effects of misleading information were not present. Additionally, participants who were asked to answer the cued recall test first provided almost no misleading information (Goodwin et al., 2013); providing evidence that the social influence of a confederate adds to the pressure to conform.

Attractiveness

Dion et al. (1972) first questioned the influence that attractiveness plays in everyday social interactions. Entitling their findings “What is beautiful is good,” they found that attractive confederates were rated more positively on such factors as social desirability, marital competence, and social and professional happiness. Since these original findings other researchers have tested many hypotheses, including: (a) attractive people are perceived differently than unattractive people; (b) attractive people are treated differently than unattractive people; and (c) attractive people have different characteristics than unattractive people (Eagly et al., 1991). The halo effect – the common belief, accurate or not, that attractive individuals possess a host of positive qualities beyond their physical appearance – encompasses the findings of the research pertaining to attractiveness’ power (Gilovich, Keltner, & Nisbett, 2006).

Attractive individuals have been rated to be happier, more intelligent, and more socially competent. Additionally, they are thought to have better marriages, higher salaries, and more success (Dion, et al., 1972; Eagly, et al., 1991; Frieze et al., 1991; Moore, et al., 1987). In real-world explorations, attractiveness can influence level of pay for employees (Frieze et al., 1991), length of sentencing for criminals (Sigall & Ostrove, 1975), and the likelihood of receiving help after an accident (West & Brown, 1975). Frieze et al. had 452 male and 285 female MBA graduates, over a 10-year period, rate facial attraction on a 5 point scale, and then compared salaries of each participant. Results showed a males’ salary would increase approximately \$2,500 for every point on the five point scale; females would increase by \$2,100 for every point. When interacting with an attractive person, others expectations of the outcome can dramatically change, as well as actually change how the

interaction takes place (Vogel, Kutzner, Fiedler, & Freytang, 2010). One of the more effective uses of attractiveness has been found in persuasion research.

Persuasion and the Effect of Attractiveness

While there is a large amount of literature and research pertaining to the effects of attraction on social interactions, co-witness discussion and attractiveness has yet to be explored. Due to the lack of background information, the focus of this research will be on the effects of attractiveness on persuasion. Early studies found that attractive communicators are rated significantly more likable and persuasive than unattractive communicators (Chaiken, 1979). Among other things, attractive individuals are rated more trustworthy, and their messages are remembered more when delivering a believable story (Nash, Bryer, & Schlaghecken, 2010). Multiple theories of persuasion have been created, but one of the most cited theories is the Elaboration Likelihood Model (ELM), established by Petty and Cacioppo (1986). The ELM accounts for two main routes of persuasion, the central route and the peripheral route. When using the central route to persuasion two factors are taken into account for the recipient: their own motivation (or involvement) and a careful examination of the relevance with the issue being presented. The peripheral route is attributed to the recipients focusing on the simple and superficial cues of the persuader, such as the length of the message and the attractiveness of the communicator (Gilovich et al., 2006; Shavitt et al., 1994).

Reinhard, Messner, and Sporer (2006) use a two-step model of persuasion to identify the role of attractiveness during first impressions. First impressions in a social interaction

tend to rely on physical attributes such as, gender, race, and attractiveness. After the physical characteristics of person have been established, both parties of the interaction begin evaluating each other based on these characteristics. If one of the participants in the interaction perceives the other as attractive, one can assume they have attributed positive characteristics, such as social competence, likability, intelligence, and high confidence (Dion et al., 1972; Eagly, et al., 1991; Frieze et al., 1991; Moore, et al., 1987). Reinhard et al. further theorized that a favorable impression of an attractive persuader leads to a higher likability; and in contrast a less favorable impression has been attributed to an unattractive persuader. The second step of this two-step model of persuasion relies on the amount of self-interest the persuader exudes in the preceding interaction. Higher amounts of self-interest (i.e. wanting a sale for commission) can negatively affect a persuader's effectiveness. Reinhard et al. hypothesized that a persuader with self-interest would be more successful compared to a persuader who has self-interest in persuading a recipient but is unattractive.

Reinhard et al. (2006) found that persuasion was significantly more successful when presented by an attractive persuader, using videotaped ads with confederates of varying attractiveness. Also consistent with past research an attractive model was rated as significantly more likable when compared to the unattractive confederate. Contrary to past research on persuasion, when an attractive individual presented the persuasion overtly, such as stating "I want you to buy this product," participants reported that they were more likely to purchase the specific product. Reinhard et al. noted that unattractive confederates were rated less likable and less attractive when presenting an overt attempt of persuasion than a covert attempt. Although this may not directly translate to a co-witness discussion, due to the lack

of overt attempts to change memories, these findings show how easily persuasion can be accepted or denied when comparing attractive to unattractive persuaders.

One reason for the higher success rate of attractive persuaders may be linked to their own perceived confidence; attractive persuaders rate themselves as being more persuasive, socially competent, attractive, and interesting (Chaiken, 1979). Additionally, a higher perceived social competence possibly allows for attractive individuals to understand when their attractiveness can be used to persuade the recipient (Vogel et al., 2010). Previous research has sought to understand the implications of how attraction directly affects the outcome of persuasion, yet it has also been shown to affect the beliefs of who is more likely to be susceptible to its influence. Vogel et al. asked participants to rate the effectiveness of attractive persuaders when encountering individuals with high and low processing motivation. High processing motivation individuals were described as having ample time and resources to evaluate the situation; these individuals have the ability to focus on the arguments and content being presented by the persuader. While low processing motivation individuals were lacking in both areas, allowing for an increase of effectiveness of the persuaders superficial variables (i.e., attractiveness and confidence). Vogel et al. found that participants assumed that the more attractive a person thinks they are, the more likely they would seek out individuals with low processing motivation in order to use their attractiveness to persuade others. In addition, attractive individuals preferred situations in which they assumed their attractiveness would play a large role in successful persuasion. Regarding the theory of attractiveness, Vogel et al. illustrated that when placed in a situation where persuasion is necessary, an individual who perceives them self as attractive to the recipient,

will try to use their attractiveness as a tool of persuasion, as shown by attractive persuaders seeking out recipients with low processing motivation.

In accordance with the halo effect, positive traits are attributed to attractive individuals, regardless of accuracy, upon initial judgments; these positive traits include higher social competence, likability, trustworthiness, higher intelligence, happiness, and general success (Dion et al., 1972; Eagly et al., 1991; Frieze et al., 1991; Moore, et al., 1987). The attribution of these positive traits aid attractive individuals to be successful when participating in social interactions, especially when attempting to persuade others such as when attempting to sell products or represent organizations. Results consistently show that attractive individuals are more likely to successfully persuade others (Chaiken, 1979; Reinhard et al., 2006; Shavitt et al., 1994; Vogel et al., 2010). Participants are more likely to be persuaded by an attractive person when partaking in an act that needs a high level of involvement thus focusing on the attractiveness more (Shavitt et al., 1994). Lay persons reported thinking attractiveness plays a large role in persuasion, especially when processing motivation is low and the persuader perceives themselves as attractive (Vogel et al., 2010). Researchers have also reported results showing that attractive individuals are more trustworthy and thus are remembered more when relaying a believable message (Nash et al., 2010). The consistent findings of the influence of attractiveness and its positive effect on successful persuasion support the theory that attractiveness should have an effect on co-witness discussion and memory conformity. The combination of the attribution of positive

traits given to an attractive individual, specifically confidence and trustworthiness, and the importance of attractiveness in persuasion create an increased likelihood for conformity.

Present Study

Confidence in a witness's testimony is continually seen as a predictor of accuracy, regardless of the actual accuracy (Goodwin et al., 2013; Ost et al., 2008). In addition, confidence is related to conformity when encountered in an inaccurate co-witness discussion. Attractiveness has been shown to be a dominant factor in the creation of perception of an individual's personality (Dion et al., 1972; Eagly et al., 1991; Frieze et al., 1991; Moore, et al., 1987). In addition, high attractiveness has been established as playing a key role in achieving successful persuasion (Chaiken, 1979; Reinhard et al., 2006; Shavitt et al., 1994; Vogel et al., 2010). The present study seeks to further explore the implications of co-witness discussion and memory conformity, and understand the effect of two complimentary social variables: Confidence and attractiveness.

Participants viewed a video featuring a crime being committed followed by "eyewitness" account of a fellow student who watched the same video. This fellow student was dressed either attractively or unattractively and spoke either more or less confidently about their memory. Within the co-witness account of the video, the confederate gave multiple false PEI in order to assess the effectiveness of attractiveness and confidence on memory conformity. Following the viewing of the confederate's account, each participant completed a cued recall test; the test incorporated the false PEI presented in the confederate's account. After each question, the participants rated the level of confidence they have in their

answer. The amount of memory conformity to false PEI was recorded, as well as the confidence ratings given by the participants. In addition, participants were asked to complete a free recall test two weeks following testing. This test asked them to describe the original video of the crime as in depth as possible and rate their overall confidence of their memory. With the combination of attractiveness and confidence manipulations, memory conformity was expected to increase. Therefore hypotheses were as follows:

H1: There will be main effects for attractiveness and confidence. Participants who are exposed to the highly attractive witness will report higher levels of conformity than those exposed to the low attractiveness witness. The same effect will be shown for confidence; participants exposed to the high confident witness will report higher levels of conformity than those exposed to the low confident witness.

H2: Participants will rate their own confidence the highest when exposed to the high attractive - high confidence witness.

H3: The same pattern of results for conformity seen in the cued recall test will be produced 1 week later in free recall test.

Chapter 2:

Method

Participants

A total of 101 undergraduate students participated, 68 females and 33 males with a mean age of 19.05 ($SD = 2.606$). All participants' received course credit or extra-credit in their Introductory Psychology course for their participation, and were recruited using Towson University's online Research Pool Database.

Materials

Two different video clips were used in the current experiment, the first depicted a crime taking place and the second was a short witness testimony of the female confederate's "memory" of the first clip. The opening scene from the 1981 film *The Thief* was used as the crime video. The scene depicts three men breaking into a bank late at night. Participants then viewed the second short video; this video featured a confederate giving a testimony of what she "remembers" from the first film scene shown. There were four different videos of the confederate used: one in which she was dressed attractively and was confident in the memories (See Appendix B for Script), she was dressed unattractively and is confident in the memories, she was dressed attractively and was not confident (See Appendix C for Script), or she was dressed unattractively and was not confident. For the attractive videos the confederates hair and makeup was done in order to give her a much more attractive look when compared to the unattractive videos. The unattractive videos featured the same young

woman with her makeup done so she appeared to have acne and dark bags under her eyes; additionally her hair appeared to be messy and undone. The testimony itself had 10 different items of misinformation mixed with 10 consistent facts from the original videos. In order to establish the confidence level of the confederate casually stated at the beginning of the video that “I have a great memory for this kind of thing and seeing it twice really helped” or “My memory is awful, I wish I could have seen it twice.” Additionally the actress in the video “acted” confident or not confident in the respective videos. For example, in the non-confident video she broke eye contact, corrected herself a few times, stuttered at different points, and fidgeted nervously. While during the confident video she looked directly into the camera and spoke with confidence.

Two distractor tests (see Appendix D and E) were used after participants finished viewing each video clip. The booklets featured 10 pages of math problems and Sudoku’s. Each page featured math problems more difficult than the previous page. These booklets were designed in order to make it impossible for the participants to finish all of the problems in the allotted 10 minutes.

After 10 minutes passed the participants then completed a 20-item cued recall test (See Appendix A); ten items will be target questions, featuring the misleading information given by the confederate in the video. Each question asked the participants about a certain aspect of the first video, such as “What color was the shirt of the criminal?” The participants were asked to give their answer followed by a confidence rating of 1 (*not confident at all*) to 6 (*extremely confident*). An additional free recall test (see Appendix F) was given to each

participant two weeks following the initial testing. This test asked participants to briefly describe what they saw in the crime video clip.

Procedure

Participants were tested in groups ranging from 1-10 participants. Participants entered the classroom, once all participants were in attendance the consent form (see Appendix G) was read aloud to them. Each participant signed the consent and was given an additional consent for one's own records. Participants viewed a short video clip; before the video is played the experimenter told the participants to play close attention to the video because their memory will be tested later. After viewing the video the participants were given a booklet of tests. After 10 minutes the experimenter collected the booklet and then played the second video. The experimenter explained that the second video is another participant who was asked to record their recollection of the videotaped crime. Once the video finished, the participants completed a second 10 minute distracter booklet. Following the booklet the experimenter administered the 20-item cued recall test. Following test item, participants rated how confident they are in on a 6-point scale. If the participant answered "I do not know" to the question they were told to not give a confidence score. Following the completion of the cued recall test, the experimenter explained that in 1 week an email was sent to the participant asking them to recall what they viewed during the experiment. The free recall test was administered using surveymonkey.com; each participant was emailed a link to the survey a week from the first experimental session. Participants were given an ID number during the initial session which allowed for the follow-up results to be linked to the

initial results. All responses were printed out upon completion, added to previous materials in the locked drawer in the Towson Cognitive Psychology Lab. Upon completion of the free recall test the debriefing form (see Appendix H) was sent by email to all participants. If the free recall test was not completed the debriefing was sent three days after the one week follow-up.

Chapter 3:

Results

Manipulation Check

In addition to the total sample for the experiment, a total of 38 volunteers rated the confederate on her attractiveness 1 (*not attractive at all*) to 10 (*extremely attractive*) scale and confidence on a 1 (*not confident at all*) to 10 (*extremely confident*) scales. Each of the 38 volunteers rated one of the four videos, for attractiveness and confidence, 10 volunteers rated the attractive/confident, attractive/non-confident, unattractive/confident videos and 8 rated the unattractive/non-confident video. A t-test was performed comparing attractiveness scores, $t(37) = 4.63$, $p = 1.15$, the attractive video had an average rating of 6.85 ($SD = 2.76$) compared to the unattractive video which had an average rating of 6.33 ($SD = 1.64$). A t-test was performed comparing the confidence scores, $t(37) = 8.68$, $p < .001$, the confident video resulted in significantly higher confidence ratings ($M = 8.25$, $SD = 1.67$) compared the confidence ratings of the non-confident video ($M = 3.67$, $SD = 1.29$).

Scoring

Accuracy was computed by scoring each answer for the cued recall as a “hit”, “miss”, or “conform”. In order to be scored a “hit”, participant’s answers had to be consistent with the correct information presented in the first video clip. An incorrect answer to a question was scored a “miss”. If the participants answer was consistent with the false PEI presented by the confederate the answer was scored as “conformed”. Each participant’s hits, misses, and conformed answers were calculated in order to create three dependent variables. Due to the

varying amount of answers given by participants for the free recall test only the number of conformed items was reported. For each item of false PEI presented in the free recall participants were given one point, the total number of points was calculated creating the dependent variable of conformity over time. Two raters independently coded the cued recall tests, Cronbach's Alpha = .604. When there was a disagreement in scoring, a third unbiased rater made a decision on the ambiguous answer.

Cued Recall

A 2 (attractive vs. unattractive) by 2 (confident vs. non-confident) between-subjects multivariate analysis of variance (MANOVA) was done in order to compare the total number of hits, misses, and conformity. The analysis revealed a significant multivariate main effect for attractiveness $F(3, 95) = 3.11, p = .030$, Wilks' $\lambda = .911, \eta^2 = .089$, with an observed power = .708 (see Figure 1). There was also a multivariate main effect for confidence, $F(3, 95) = 3.11, p = .03$, Wilks' $\lambda = .911, \eta^2 = .089$, with an observed power = .709 (see Figure 2). There was no significance found for the multivariate interaction between attractiveness and confidence, $F(3, 95) = 1.65, p = .18$, Wilks' $\lambda = .95, \eta^2 = .049$, with an observed power = .419. The univariate between-subjects ANOVAs produced two main effects, the first being attractiveness on the total number of conformities, $F(1, 97) = 5.18, p = .025, \eta^2 = .052$, with an observed power = .616. Participants exposed to PEI by the attractive actress produced significantly more conformity to false information ($M = 3.44, SD = 2.28$) compared to the unattractive actress ($M = 2.58, SD = 1.55$; see Table 1). Additionally, a univariate main effect was produced when testing the effect of confidence on the number of correct answers, $F(1, 97) = 5.50, p = .021, \eta^2 = .054$. Participants recalled more correct answers significantly more

in the confident groups ($M = 15.54$, $SD = 3.15$) compared to the non-confident groups ($M = 13.35$, $SD = 4.33$ (see Table 2).

Confidence

A MANOVA was conducted to test the effect of attractiveness and confidence on reported confidence, comparing the total reported confidence score, average reported confidence score on conformed items, average reported confidence score on correct items, and average reported confidence score on incorrect items. The MANOVA yielded a significant main effect for attractiveness $F(4, 94) = 2.55$, $p = .045$, Wilks' $\lambda = .902$, $\eta^2 = .098$, with an observed power = .700 (see Figure 3). In addition, the MANOVA yielded a main effect for confidence, which was significant at the .06-level, $F(4, 94) = 2.45$, $p = .051$, Wilks' $\lambda = .905$, $\eta^2 = .095$, with an observed power = .682 (see Figure 4). The MANOVA did not yield a significant multivariate interaction between attractiveness and confidence $F(4, 94) = .42$, $p = .79$, Wilks' $\lambda = .982$, $\eta^2 = .018$, with an observed power = .144. The univariate between-subjects ANOVA resulted in a significant main effect for confidence on the average confidence score for correct answers, $F(3, 97) = 4.11$, $p = .045$, $\eta^2 = .041$, with an observed power = .519 (see Table 3). Participants were significantly more confident in their correct answers when the PEI was presented by a confident confederate. An additional trend was produced when testing the effect of attractiveness on the average confidence score reported on conformed items, $F(3, 97) = 3.57$, $p = 0.063$, $\eta^2 = .035$, with an observed power = .519 (see Table 4), illustrating that participants confidence scores were higher for conformed answers when the PEI was presented by an attractive confederate. No univariate interactions were found.

Free Recall – One Week Later

A total of 83 of the original 102 participants responded to the one-week follow-up free recall test. These results were then compared using a 2 (attractive vs. unattractive) by 2 (confident vs. non-confident) ANOVA. The results did not produce any significant results, yet the main effect of attractiveness was approaching significance, $F(1,79) = 3.161, p = .079$, partial $\eta^2 = .038$ (see Figure v). Although the results were not significant participants appeared to conform more ($M = 1.30, SD = 1.46$) when information was presented by the attractive model, compared to those participants presented with the false PEI by an unattractive model ($M = .795, SD = 1.01$). The results illustrate the need for more participants in order fully address the effective of attractiveness on conformity to PEI over time.

CHAPTER 4:

Discussion

Results indicated the significance of understanding the effect of attractiveness and confidence when evaluating conformity to false PEI. The results only partially support the initial hypotheses. Although the manipulation check did not produce a significant difference between groups it is clear that both attractiveness and confidence had an effect on participants' memory and confidence. Attractiveness was found to have an effect on conformity, presenting an attractive confederate produces more conformity compared to an unattractive confederate. Although there was no difference between the total confidence scores between groups; as hypothesized, participants had higher confidence ratings to conformed items when the PEI was given by an attractive individual than when given by an unattractive individual. Additionally, when PEI was presented by a confident individual, participants rated their confidence higher when answering correctly, a conceptual replication of Goodwin et al. (2013).

Attractiveness and confidence produced significant effects on participants' memory for a witnessed event. Although there is no previous literature exploring the relationship between attractiveness and memory conformity, persuasion literature indicates the more attractive an individual is thought to be the more persuasive they can be (Chaiken, 1979; Reinhard et al., 2006; Shavitt et al., 1994; Vogel et al., 2010). Results of the current experiment reinforce these findings indicating the propensity of an individual to be persuaded more by an attractive individual compared to unattractive individual. However, the current results should be considered as tentative, as the results of the manipulation check

demonstrated no difference in ratings of attractiveness between the videotaped female confederate. This issue will be addressed in more depth below.

Trustworthiness is consistently shown to be a trait associated with attractive individuals (Dion, et al., 1972; Eagly, et al., 1991; Frieze et al., 1991; Moore, et al., 1987). Participants were exposed to the same script in all four videos, but only produced significantly more misinformation in the memory test when it was presented by the actress dressed attractively, regardless of confidence. Interestingly, participants recalled more correct answers when PEI was presented by a confident individual. The overall confidence allowed the participants to identify correct information presented by the confederates, and accurately recall more information. Goodwin et al. (2013) noted that confidence can be a predictor of perceived accuracy, which could have helped participants solidify their own memory of correct information. One facet of the present study that had not been explored in past research was the effect of memory conformity over time. The results did not illustrate a strong effect of attractiveness or confidence on free recall after 1 week, but there was a trend that followed the original findings in the cued-recall test. Individuals presented with PEI from an attractive confederate had a higher average of conformed items than those who encountered an unattractive confederate. These findings are extremely interesting and need further exploration, considering the weak power found in the present sample.

Although confidence scores did not support the hypothesis, they did produce significant results. Participants had more confidence in correct memories of the crime scene when presented with consistent PEI from a confident individual; while participants rated their confidence higher in their conformed answers when PEI was presented by an attractive individual. These results may be due to the main effects of attractiveness and confidence

previously discussed, more correct/conformed answers producing more confidence scores. It is possible that there is a correlation between the number of conformed or correct items answered and confidence scores. For example, the more questions a person answers correctly (or conforms to) the higher their confidence will be, especially compared to participants that had difficulties recalling the correct or conformed answers.

Again, the presentation of false PEI is seen to produce a significant amount of conformity in memory recall. Manipulating confidence of the individual presenting the PEI has been shown to produce varying levels of conformity to false information. Higher levels of confidence tend to create higher levels of conformity to false information (Gabbert et al., 2007; Goodwin et al., 2013; Ost et al., 2008; Wright, et al., 2000). The current study did not produce a significant difference in conformity while manipulating confidence. Confidence and attractiveness are tied very closely together; attractive individuals being rated more confident and vice versa. Attractiveness was clearly the most powerful variable in the current study, providing further insight into attractiveness, persuasion, and conformity research.

There were some limitations of this study. Observed power was low on multiple comparisons for confidence scores and accuracy/conformity. Using a larger sample size may produce more robust effects. Also, the video used as the crime video, had poor quality when shown on a big screen. All of the items on the cued recall test were clearly seen, except for one item (e.g., the color of the safe); therefore this item on the cued recall test was not used. Despite these limitations, the largest limitation of the study was the perceived attractiveness of the videotaped confederate. The manipulation check produced no significant difference in attractiveness between the attractive and unattractive confederate; thus, making it possible that the effect on conformed answers to have been elicited by another variable

besides attractiveness. Yet, when considering the past literature supporting the effects of attractiveness on persuasiveness and the overt questioning of the manipulation check (i.e. How attractive is the woman in the video), it is easy to attribute the difference in conformed answers between groups to the manipulation of attractiveness. In addition there were no other effects shown that could be due to a third unidentifiable variable throughout all of the results. In the future, it would be necessary to more covertly assess attractiveness in the manipulation check.

Overall, the current study produced interesting results. The difference in attractiveness did produce a significant amount of conformity to false information. This finding gives great insight on just how influential an attractive person can be. Not only are attractive individuals attributed with a plethora of positive traits, they are more influential and believable. The confidence of the individual presenting PEI did not seem to have much effect on conformity, but it did produce more accurate responses of participants. Confidence is clearly a large contributor to social interactions, but may have less of an effect when compared to attractiveness. The overall effect of false PEI was once again shows a positive effect on memory conformity; thus, demonstrating the need for witnesses not to engage in co-witness discussion. In order, to more fully understand the depth of attractiveness and confidence on conformity to false information further investigation is needed.

Table 1: Cued Recall Comparison of Means, Attractiveness

Cued Recall	Attractiveness	
	High Attractiveness ($n=50$)	Low Attractiveness ($n = 51$)
<i>M</i> Hits (<i>SD</i>)	14.86 (3.48)	14.61 (4.06)
<i>M</i> Misses (<i>SD</i>)	8.18 (4.46)	9.10 (4.15)
<i>M</i> Conform (<i>SD</i>)*	3.44 (2.28)	2.58 (1.55)
*Significant $p < .05$		

Table 2: Cued Recall Comparison of Means, Confidence

Cued Recall	Confidence	
	<i>High (n= 54)</i>	<i>Low (n = 47)</i>
<i>M Hits (SD)*</i>	15.54 (3.15)	13.35 (4.33)
<i>M Misses (SD)</i>	8.13 (3.97)	9.23 (4.64)
<i>M Conform (SD)</i>	2.83 (1.94)	3.13 (2.07)
*Significant $p < .05$		

Table 3: Confidence Scores Comparison of Means, Confidence

Confidence Scores	Confidence	
	High	Low
<i>M</i> Total Confidence (<i>SD</i>)	79.24 (14.07)	75.13 (17.10)
<i>M</i> Hits (<i>SD</i>)*	2.69 (0.76)	2.33 (1.00)
<i>M</i> Misses (<i>SD</i>)	1.00 (0.40)	1.27 (1.05)
<i>M</i> Conform (<i>SD</i>)	1.27 (1.05)	1.37 (1.17)

*Significant $p < .05$

Table 4: Confidence Scores Comparison of Means, Attractiveness

Confidence Scores	Attractiveness	
	High Attractiveness	Low Attractiveness
<i>M</i> Total Confidence (<i>SD</i>)	76.76 (15.85)	77.88 (15.51)
<i>M</i> Hits (<i>SD</i>)	2.52 (1.07)	2.52 (0.91)
<i>M</i> Misses (<i>SD</i>)	0.95 (0.43)	1.08 (0.45)
<i>M</i> Conform (<i>SD</i>)**	1.53 (1.30)	1.10 (0.83)
**Significant $p < .06$		

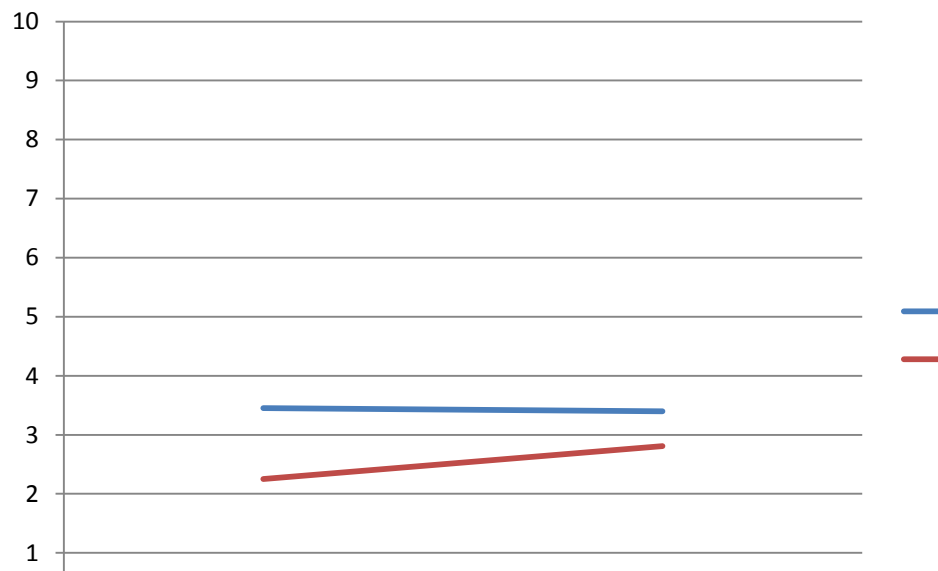
Figures and Charts:**Figure 1:****Total Number of Conformed Answers Cued Recall**

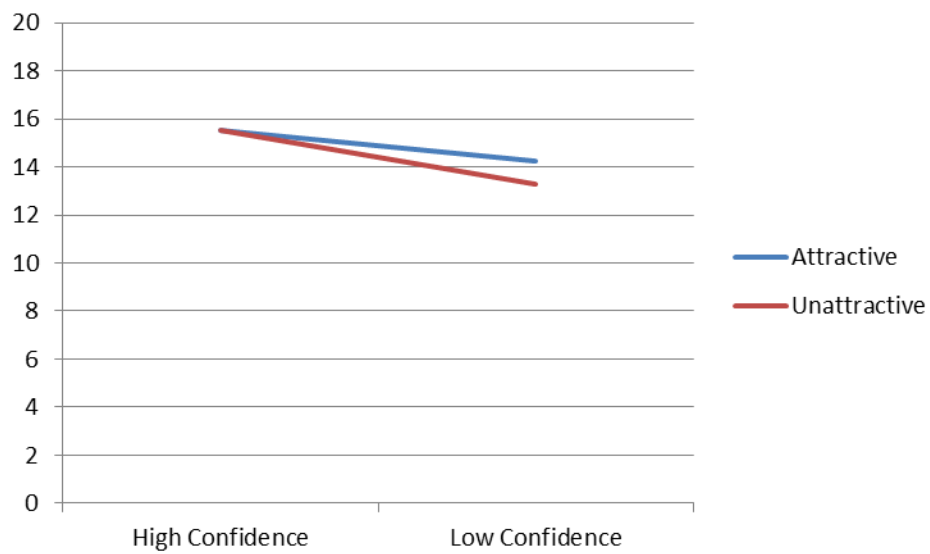
Figure 2:**Total Number of Correct Answers Cued Recall**

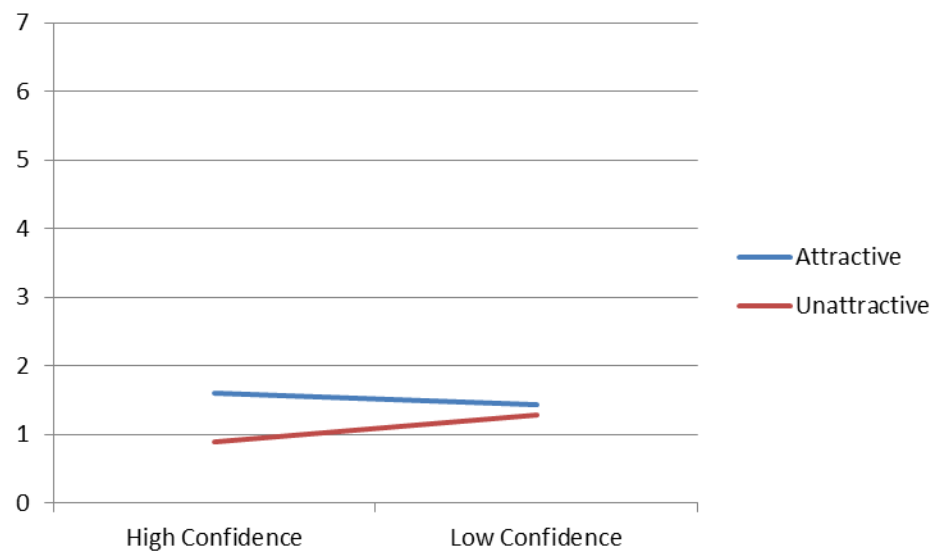
Figure 3:**Average Confidence for Conformed Answers Cued Recall**

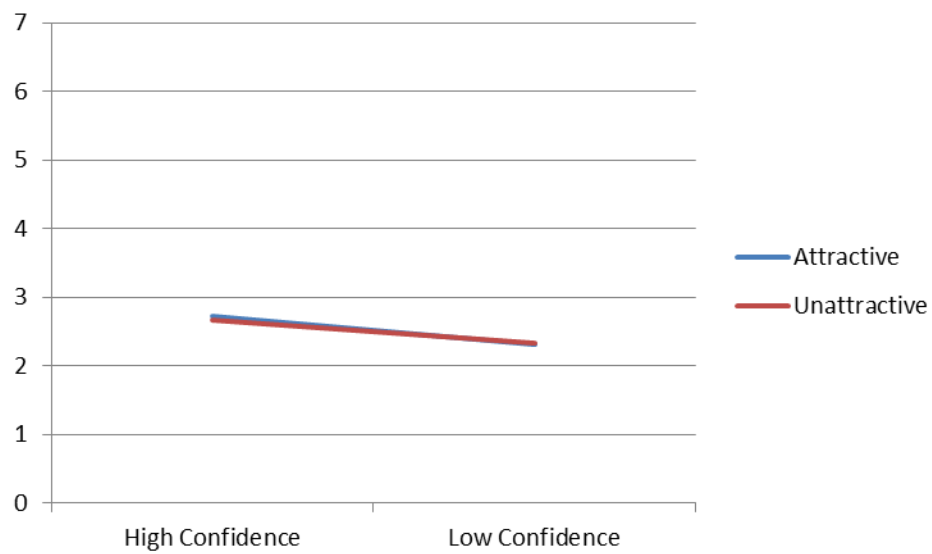
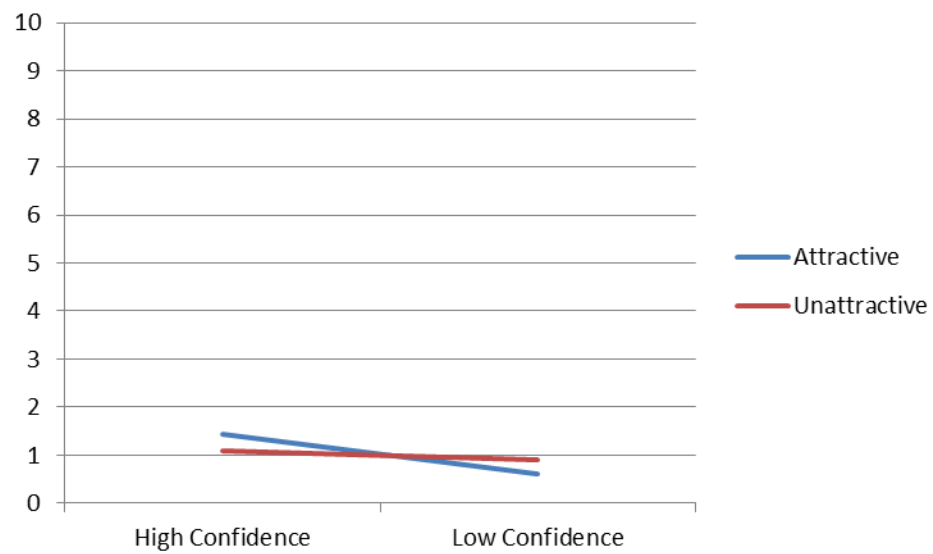
Figure 4:**Average Confidence Score for Correct Answers Cued Recall**

Figure 5:**Total Number of Conformed Items Free Recall Test**

Appendix A: Cued Recall Test

Participants Cued Recall Test

Now you will be completing a memory test on the first video you saw. Please answer the question as accurately as you can. After you have answered the question please rate how confident you are in that answer on a 1-6 scale, 1 being not confident at all 6 positive in your answer.

1. What is the first man you see in the scene doing?

Confidence Score:

2. What color is the safe?

Confidence Score:

3. Describe what he is wearing.

Confidence Score:

4. What three tools does the first thief use?

Confidence Score:

5. What does the thief do with his glasses?

Confidence Score:

6. What does the thief do with the items in the safe?

Confidence Score:

7. Describe the items of the safe the thief steals and how many

Confidence Score:

8. How many other men are involved in the crime?

Confidence Score:

9. What are the other thieves doing when you first see them?

Confidence Score:

10. Describe what the other thieves look like.

Confidence Score:

11. What color is the first car?

Confidence Score:

12. What does the first thief ask the others?

Confidence Score:

13. Where is the equipment placed in the first car?

Confidence Score:

14. What do the two thieves do with their jump suits?

Confidence Score:

15. What color is the second car the two thieves get into?

Confidence Score:

16. What does the passenger smoke?

Confidence Score:

17. What do the two thieves do with the second car?

Confidence Score:

18. What are the two thieves wearing now?

Confidence Score:

19. What is the license plate of the third car you see?

Confidence Score:

20. What is the make and model of the last two cars you see?

Confidence Score:

Appendix B: High Confidence Script

HIGH CONFIDENCE

Experimenter (off screen): Can you please describe the scene you just witnessed in as much detail as possible please?

Witness: Yeah of course. I have a great memory, and seeing it twice really helped!

(The entire time try to speak confidently and assured, keep “eye contact” with the camera as much as possible)

The scene starts with a thief drilling into a safe. The thief is wearing a grey jump suit and a pair of protective glasses. After he is finished drilling into the safe he uses a hammer and chisel to hammer something out of place to open the safe.

Once the door is open, he tapes a flash light to the door and hammers the second door to the safe open. **He puts his glasses into his pocket** and after that the thief starts going through the safe, but he is just throwing all the jewelry he finds on the ground. Then he finds **four boxes** full of small **tan** envelopes and puts the **Minto** his bag.

After he is done you see the other two guys he is working with. One is outside working with a bunch of wires and the other is in a black car. The guy working on the wires is wearing the same grey jump suit as the first thief and the **guy in the car is wearing a black stocking hat.**

Next they check to see if everything is all clear and the guy in the car pulls around. The two other theirs walk up to the car and put their equipment in the trunk of the car and the driver drives off. Then they take off their suits and throw **theMinto a dumpster.**

Next they walk out of the alley and get into another car. That car was **grey**. The next part of the scene they are just driving, the guy in the passenger seat lights a **cigar.**

Then they pull up to a garage, the passenger gets out and opens it. The driver pulls the car in and gets out. You can see that both the thieves are **wearing jeans and leather jackets.**

Then the driver gets into a black car, I remember the license plate was **A1B-23C**. He pulls out and you can see the passenger is in another car, it's white **Camaro**, I know because my dad had one just like that. Then the two guys drive off.

Appendix C: Low Confidence Script

LOW CONFIDENCE

Experimenter (off screen): Can you please describe the scene you just witnessed in as much detail as possible please?

Witness: I can give it a try, I don't have a very good memory. I wish I could see it again.

(Throughout the description make sure to break "eye contact")

The scene starts with a thief drilling into a safe. The thief is wearing a grey jump suit and some kind of glasses, I guess for protection. After he is finished drilling into the safe he uses a hammer and chisel to hammer something out of place to open the safe.

Once the door is open, he... uh... oh yeah, tapes a flash light to the door and hammers the second door to the safe open. **He puts his glasses into his pocket** and after that the thief starts going through the safe, but he is just throwing all the jewelry he finds on the ground. Then he finds some boxes (look down for a second), it was **four boxes** full of small **tan** envelopes and puts the *M* into his bag.

After he is done you see the other two guys he is working with. One is outside working with a bunch of wires or something like that and the other is in a blue...no black car. The guy working on the wires is wearing the same grey jump suit as the first thief and the **guy in the car is wearing a...uhhh black stocking hat**.

Next they check to see if everything is all clear and the guy in the car pulls around. The two other theirs walk up to the car and put their equipment in the trunk of the car and the driver drives off. Then they take off their suits and throw **them into a dumpster**.

Next they walk out of the alley and get into another car. That car was **grey**. The next part of the scene they are just driving, the guy in the passenger seat lights a **cigar**.

Then they pull up to a garage, the passenger gets out and opens it. The driver pulls the car in and gets out. You can see that both the thieves are **wearing jeans and leather jackets**.

Then the driver gets into a black car, I think I remember the license plate being like **A1B-23C**. He pulls out and you can see the passenger is in another car... it was white, maybe it was a **Camaro**, my dad has a car that kind of looks like that. Then they both drive off.

Appendix D: First
Math Booklet*1:*

$$\begin{array}{r} 8 \\ + 22 \\ \hline \end{array}$$

2:

$$\begin{array}{r} 14 \\ + 19 \\ \hline \end{array}$$

3:

$$\begin{array}{r} 14 \\ + 9 \\ \hline \end{array}$$

4:

$$\begin{array}{r} 8 \\ + 8 \\ \hline \end{array}$$

5:

$$\begin{array}{r} 9 \\ + 24 \\ \hline \end{array}$$

6:

$$\begin{array}{r} 24 \\ + 17 \\ \hline \end{array}$$

7:

$$\begin{array}{r} 17 \\ + 3 \\ \hline \end{array}$$

8:

$$\begin{array}{r} 19 \\ + 25 \\ \hline \end{array}$$

9:

$$\begin{array}{r} 9 \\ + 17 \\ \hline \end{array}$$

10:

$$\begin{array}{r} 8 \\ + 16 \\ \hline \end{array}$$

11:

$$\begin{array}{r} 8 \\ + 24 \\ \hline \end{array}$$

12:

$$\begin{array}{r} 17 \\ + 5 \\ \hline \end{array}$$

13:

$$\begin{array}{r} 24 \\ + 18 \\ \hline \end{array}$$

14:

$$\begin{array}{r} 15 \\ + 18 \\ \hline \end{array}$$

15:

$$\begin{array}{r} 13 \\ + 7 \\ \hline \end{array}$$

16:

$$\begin{array}{r} 15 \\ + 15 \\ \hline \end{array}$$

17:

$$\begin{array}{r} 5 \\ + 5 \\ \hline \end{array}$$

18:

$$\begin{array}{r} 4 \\ + 18 \\ \hline \end{array}$$

19:

$$\begin{array}{r} 19 \\ + 2 \\ \hline \end{array}$$

20:

$$\begin{array}{r} 7 \\ + 3 \\ \hline \end{array}$$

1:

78

- 53

2:

81

- 43

3:

89

- 31

4:

73

- 35

5:

141

- 82

6:

123

- 57

7:

61

- 47

8:

104

- 32

9:

110

- 92

10:

58

- 10

11:

128

- 72

12:

140

- 44

13:

83

- 53

14:

134

- 11

15:

107

- 62

16:

140

- 134

17:

79

- 76

18:

102

- 56

19:

46

- 10

20:

68

- 58

21:

109

- 105

22:

127

- 113

23:

68

- 55

24:

69

- 35

25:

112

- 13

1:	2:	3:	4:	5:
9,838	10,200	11,336	9,040	18,649
- 6,207	- 4,855	- 3,178	- 3,693	- 10,329
_____	_____	_____	_____	_____
6:	7:	8:	9:	10:
16,089	7,353	13,470	14,226	7,005
- 6,784	- 5,423	- 3,225	- 11,750	- 158
_____	_____	_____	_____	_____
11:	12:	13:	14:	15:
16,784	18,541	10,448	17,694	13,793
- 8,883	- 5,030	- 6,215	- 365	- 7,531
_____	_____	_____	_____	_____

2:

$$\begin{array}{r} 7 \\ \times 5 \\ \hline \end{array}$$

3:

$$\begin{array}{r} 10 \\ \times 11 \\ \hline \end{array}$$

4:

$$\begin{array}{r} 3 \\ \times 3 \\ \hline \end{array}$$

5:

$$\begin{array}{r} 8 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 15 \\ \times 9 \\ \hline \end{array}$$

6:

$$\begin{array}{r} 4 \\ \times 15 \\ \hline \end{array}$$

7:

$$\begin{array}{r} 7 \\ \times 4 \\ \hline \end{array}$$

8:

$$\begin{array}{r} 10 \\ \times 14 \\ \hline \end{array}$$

9:

$$\begin{array}{r} 13 \\ \times 12 \\ \hline \end{array}$$

10:

$$\begin{array}{r} 11 \\ \times 10 \\ \hline \end{array}$$

11:

$$\begin{array}{r} 6 \\ \times 12 \\ \hline \end{array}$$

12:

$$\begin{array}{r} 3 \\ \times 7 \\ \hline \end{array}$$

13:

$$\begin{array}{r} 6 \\ \times 7 \\ \hline \end{array}$$

14:

$$\begin{array}{r} 9 \\ \times 14 \\ \hline \end{array}$$

15:

$$\begin{array}{r} 3 \\ \times 9 \\ \hline \end{array}$$

16:

$$\begin{array}{r} 14 \\ \times 9 \\ \hline \end{array}$$

17:

$$\begin{array}{r} 13 \\ \times 13 \\ \hline \end{array}$$

18:

$$\begin{array}{r} 3 \\ \times 14 \\ \hline \end{array}$$

19:

$$\begin{array}{r} 12 \\ \times 7 \\ \hline \end{array}$$

20:

$$\begin{array}{r} 15 \\ \times 5 \\ \hline \end{array}$$

1:

15

× 13

2:

15

× 12

3:

21

× 23

4:

8

× 8

5:

17

× 13

6:

29

× 20

7:

10

× 29

8:

15

× 10

9:

17

× 14

10:

21

× 28

11:

26

× 25

12:

23

× 22

13:

14

× 24

14:

8

× 9

15:

9

× 15

1:

42

÷ 6

2:

18

÷ 6

3:

36

÷ 6

4:

40

÷ 10

5:

80

÷ 8

6:

80

÷ 10

7:

15

÷ 3

8:

10

÷ 2

9:

20

÷ 10

10:

28

÷ 4

11:

20

÷ 5

12:

90

÷ 9

13:

16

÷ 2

14:

10

÷ 10

15:

56

÷ 7

16:

6

÷ 6

17:

8

÷ 2

18:

12

÷ 2

19:

32

÷ 4

20:

6

÷ 3

		7	8	5		2		
		5			3	7		
8	9				4		3	5
	3	9	5		6			1
4								6
6			7		8	4	9	
1	2		3				5	4
		4	1			3		
		3		8	9	6		

Appendix E:
Second Math
Booklet

	2:	3:	4:	5:
1:	5,534	5,667	12,600	16,173
1,117	+ 14,381	+ 9,533	+ 10,295	+ 6,985
+ 10,751				
6:	7:	8:	9:	10:
10,530	14,773	2,517	3,542	14,484
+ 10,669	+ 15,752	+ 8,809	+ 10,496	+ 1,444

1: 17 + 85 <hr/>	2: 48 + 111 <hr/>	3: 49 + 76 <hr/>	4: 98 + 82 <hr/>	5: 123 + 58 <hr/>
6: 83 + 84 <hr/>	7: 113 + 120 <hr/>	8: 27 + 71 <hr/>	9: 34 + 83 <hr/>	10: 111 + 19 <hr/>
11: 129 + 149 <hr/>	12: 68 + 57 <hr/>	13: 136 + 17 <hr/>	14: 23 + 62 <hr/>	15: 60 + 58 <hr/>

	4				2		1	9
			3	5	1		8	6
3	1			9	4	7		
	9	4						7
2						8	9	
		9	5	2			4	1
4	2		1	6	9			
1	6		8				7	

	3						4	
		7				5		
6	8		5	2	7		9	3
	5		4		6		8	
9								4
	4		3		1		7	
7	1		6	4	5		3	9
		3				8		
	2						6	

Medium sudoku from
www.SudokuPuzz.com

1:	2:	3:	4:	5:
6	25	23	19	23
- 2	- 2	- 22	- 6	- 23
<hr/>	<hr/>	<hr/>	<hr/>	<hr/>

6:	7:	8:	9:	10:
19	17	23	18	22
- 11	- 16	- 13	- 13	- 10
<hr/>	<hr/>	<hr/>	<hr/>	<hr/>

11:	12:	13:	14:	15:
24	18	4	25	18
- 21	- 15	- 2	- 1	- 1
<hr/>	<hr/>	<hr/>	<hr/>	<hr/>

1: 229 - 70 <hr/>	2: 999 - 79 <hr/>	3: 902 - 858 <hr/>	4: 757 - 219 <hr/>	5: 908 - 908 <hr/>
6: 886 - 311 <hr/>	7: 964 - 257 <hr/>	8: 950 - 344 <hr/>	9: 539 - 253 <hr/>	10: 868 - 197 <hr/>
11: 744 - 507 <hr/>	12: 843 - 648 <hr/>	13: 637 - 347 <hr/>	14: 917 - 427 <hr/>	15: 647 - 524 <hr/>
16: 717 - 523 <hr/>	17: 879 - 380 <hr/>	18: 926 - 635 <hr/>	19: 834 - 288 <hr/>	20: 950 - 589 <hr/>

1:	2:	3:	4:	5:
6	2	10	6	6
$\times 10$	$\times 9$	$\times 9$	$\times 3$	$\times 2$
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6:	7:	8:	9:	10:
7	10	4	5	9
$\times 2$	$\times 10$	$\times 6$	$\times 8$	$\times 5$
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11:	12:	13:	14:	15:
3	2	3	2	3
$\times 7$	$\times 7$	$\times 8$	$\times 4$	$\times 6$
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16:	17:	18:	19:	20:
3	5	5	7	9
$\times 3$	$\times 3$	$\times 7$	$\times 9$	$\times 9$
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1:	2:	3:	4:	5:
6	2	12	7	7
$\times 11$	$\times 11$	$\times 11$	$\times 4$	$\times 2$
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6:	7:	8:	9:	10:
8	12	5	6	6
$\times 2$	$\times 12$	$\times 7$	$\times 9$	$\times 10$
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11:	12:	13:	14:	15:
11	3	2	3	2
$\times 6$	$\times 9$	$\times 8$	$\times 10$	$\times 4$
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16:	17:	18:	19:	20:
3	3	5	3	5
$\times 7$	$\times 4$	$\times 3$	$\times 11$	$\times 8$
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1:	2:	3:	4:	5:
16	15	15	6	2
$\div 4$	$\div 5$	$\div 3$	$\div 6$	$\div 2$
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6:	7:	8:	9:	10:
18	20	9	20	12
$\div 6$	$\div 4$	$\div 3$	$\div 5$	$\div 3$
<hr/>	<hr/>	<hr/>	<hr/>	<hr/>

11:	12:	13:	14:	15:
10	5	25	18	6
$\div 5$	$\div 5$	$\div 5$	$\div 3$	$\div 2$
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1:	2:	3:	4:	5:
90	96	18	44	77
$\div 10$	$\div 12$	$\div 2$	$\div 4$	$\div 7$
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6:	7:	8:	9:	10:
56	56	112	99	81
$\div 4$	$\div 14$	$\div 14$	$\div 9$	$\div 9$
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11:	12:	13:	14:	15:
91	54	20	130	36
$\div 7$	$\div 9$	$\div 10$	$\div 10$	$\div 6$
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16:	17:	18:	19:	20:
24	156	165	24	18
$\div 2$	$\div 13$	$\div 15$	$\div 3$	$\div 6$
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1:

380

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220

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3:

360

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4:

364

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224

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11:

390

÷ 30

12:

240

÷ 16

13:

810

÷ 27

14:

342

÷ 18

15:

216

÷ 9

Appendix F: Free Recall Survey

1. Name

Name

2. Age

Age

3. What is your gender?☐

Female

Male

4. Please describe, with as much detail as possible, the video of the crime you saw in your first experimental session

Appendix G: Informed Consent

INFORMED CONSENT FORM

Jacob Joseph-David, the principal investigator (PI) of this study, is conducting research on how different quantitative skills affect one's memory in terms of retention and recall. The goal of this study is to determine how recall and retention correlate with a person's quantitative aptitude. You will be asked to complete one 45 minute session today, and one 5 minute at home session in order to complete this study. Eventually this data will be used to better understand the mechanisms of memory and how these are affected by quantitative reasoning ability.

At these experimental sessions, you will be asked to view two different videos, as well as complete two booklets of different math problems and other quantitative tasks. First, you will watch a video that depicts a crime taking place; followed by the completion of the first quantitative booklet. Next you will view a video of another Towson student recalling all the information from the first video you watched. The second quantitative booklet will then be administered followed by a memory test. You will also be asked to complete a second session at home one week from today, this will take no longer than 5 minutes.

Participation in this study is voluntary. All information will remain strictly confidential. Although the descriptions and findings may be published, at no time will your name be used. You are at liberty to withdraw your consent to the experiment and discontinue participation at any time without prejudice.

Please be aware that the Institutional Review Board for the Protection of Human Participants at Towson University has approved this study. If you have any questions concerning this study, please contact Jacob Joseph-David at (540) 521-2592 or jjosep9@students.towson.edu, or his faculty advisor, Dr. Kerri Goodwin, at (410) 704-3202 or kgoodwin@towson.edu. Questions may also be directed to the Towson University Institutional Review Board Chairperson, Dr. Debi Gartland, at the Office of University Research Services, 8000 York Road, Towson University, Towson, Maryland 21252; Dr. Gartland can also be reached by phone at (410) 704-2236.

-----I,
_____,affirm that I have read and understood the above statement
and have had all of my questions answered.

Date: _____

Signature: _____

Appendix H: Debriefing Form

Debriefing Form: The effects of attractiveness and confidence on conformity to false memories.

The purpose of this study was to examine the effect attractiveness and confidence on the propensity of a person to conform to false information. Previous research has found that witnesses will conform to misinformation when presented by a co-witness. The magnitude of the conformity to misinformation is known to fluctuate with addition of different variables. We hypothesized that participants will conform to misinformation when it is presented by the Towson student seen in the second video. In addition, we hypothesize that participants will conform to false memory more when it is presented by an attractive and confident co-witness compared to an attractive non-confident, unattractive confident, and unattractive non-confident co-witness.

The female Towson student you viewed in the second video was actually an actress. She was reciting a script that included 7 pieces of information that was incorrect. Four separate videos were filmed featuring the same actress. In two videos she was dressed attractively, and spoke confidently in one or non-confidently in the other. In the other two videos she was dressed unattractively, and spoke confidently in one or non-confidently in the other. In addition the quantitative booklets were used as distractor tests; the tests were not graded or used in the experimental results.

Participation in this study is voluntary. All information will remain strictly confidential. Although the descriptions and findings may be published, at no time will your name be used. You are at liberty to withdraw your consent to the experiment and discontinue participation at any time without prejudice. If you have any questions after today, please feel free to call (410) 704-3202 and ask for Dr. Goodwin, or contact Dr. Debi Gartland, Chairperson of the Institutional Review Board for the Protection of Human Participants at Towson University at (410) 704-2236.

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Jacob Joseph-David

Research Program Coordinator/ Data Manager

Summary of Qualifications

- Extensive research experience in multiple disciplines, including, Social Psychology, Biopsychology, Cognitive Psychology, Public Health, and Oncology
 - Experienced in leading research based class instruction, laboratory instruction, and tutoring sessions.
 - Well versed and technically skilled with SPSS, Microsoft Office (Excel), basic HTML skills
 - Conducted numerous statistical analyses, including, Data Mining, Multiple Regressions, Binominal Regressions, Neural Networks, ANOVAs, T-Tests, and Chi Square, with written reports of results
 - Well educated and experienced in research methodology in multiple disciplines, as well as statistical analyses
 - Presented research results at Virginia Psychological Association conference, March, 2010
-

Related Skills and Experience

Research Program Coordinator and Data Manager: The Sidney Kimmel Comprehensive Cancer Center at Johns Hopkins, GI Oncology ▪ June 2012 - Present

- Coordinate multiple clinical gastrointestinal oncology research studies
- Responsible for all data collection and reporting
- Assist in the writing of protocols, protocol amendments, consent forms, and other regulatory items
- Main correspondent with JHU and JHMI IRB
- Maintain real time and past data of all patients on multiple databases
- Complete numerous trainings including HIPAA and Research, Clinical Research Billing and Management, and Good Clinical Practice

Research Program Assistant: Johns Hopkins Center for Talented Youth ▪ December 2011 – May 2012

- Created, maintained and merged multiple databases, spanning four years and 8,000 students
- Synthesized annual diagnostic reports regarding descriptive statistics, as well as ANOVAs, of CTY Summer Scholar Students
- Input, maintained, and analyzed all data in the research center at Center for Talented Youth
- Developed The Center for Talented Youth Alumni Survey using online survey tools; as well as collected and analyzed the data

Research Assistant: Johns Hopkins Bloomberg School of Public Health ▪ September 2011 – December 2011

- Organized and completed confidential computerized research interviews in person, by phone, or in prison for a young adult follow-up study with the Center for Prevention and Early Intervention.
- Worked independently to establish contact with young adults, families, and school personnel, build rapport and elicit unbiased responses during one-one-one interviewing sessions.
- Verified and logged confidential data into a centralized database.
- Located research participants through computer searches, calls to relatives, and visits to last known addresses in the community.

"The effects of confidence and attractiveness on conformity to false memories"
Master's Thesis, Towson University

- Independently researched, designed, wrote and proposed experimental design
- Conducted all research procedures
- Wrote and submitted IRB application, research questionnaire, confederate script, and consent

"The attractive liar: An understanding of the effects of attraction, status, and believability" Independent Research Bridgewater College

- Independently researched, designed and conducted experimental procedures
- Wrote and submitted IRB application
- Recorded, input and analyzed statistical data using SPSS (2x2x2 factorial analysis)
- Authored and presented research poster at Virginia Psychological Association Conference, 2010

Education

Bachelor of Science, Psychology, January, 2011

Bridgewater
College, Bridgewater, VA

Masters of Arts, Experimental Psychology, Summer 2014
Towson, MD

Towson University,

