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# People Change: Impression Management Influences Autobiographical Memories

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People Change: Impression Management Influences Autobiographical Memories

A dissertation submitted in partial fulfillment  
of the requirements for the degree of  
Doctor of Philosophy in Psychology

by

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## Abstract

This paper presents the results of an experiment that tested a new impression management strategy, termed memory enhancement, and the long-term implications of using memory enhancement. People often share the events that occur in their everyday lives to others in the form of stories. This research was designed to determine if people will alter the way they share previous events to create a specific impression. It is possible that using the impression management strategy of memory enhancement will create long lasting changes to the actual memory of the event. This was tested in an experiment in which participants were put into a situation in which they wanted to create a particular impression. Participants were then given a questionnaire that included questions about general self-knowledge and specific autobiographical memories. It was hypothesized that participants would respond to the questionnaire in ways that promote the desired impression with both types of information. This hypothesis was somewhat supported and provides evidence for memory enhancement. A follow up questionnaire was also administered to measure the long-term impact of memory enhancement. It was hypothesized that memory enhancement would have lasting impacts on how the specific memory is recalled. This hypothesis was also supported. Long-term implications on the self-concept are discussed and presented in a model.

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## Introduction

In a now relatively famous Saturday Night Live skit, Billy Crystal once said “It’s more important to look good than to feel good”. This quote is often used as a joke or in text books to describe impression management, but this line reflects an integral and puzzling truth of human nature. In many situations, people sacrifice to create the impression that their environment dictates. Sometimes people sacrifice their health, their comfort, their friends, or even the truth just to “look good”. This research was designed to investigate if people will distort the way they share their previous experiences with others to “look good” and whether this distortion persists beyond the immediate need to self-present.

Humans have an intense desire to belong and form attachments with others (Baumeister & Leary, 1995). Being excluded from a group can lead to many negative outcomes, such as academic failure (Hymel, Comfort, Schonert-Reichl, & McDougald, 1996; Pittman & Richmond, 2007), depression (Cockshaw & Shochet, 2010; Steger & Kashdan, 2009), and even suicide (Timmons, Selby, Lewinsohn, & Joiner, 2011). These negative outcomes illustrate that not “looking good” can have serious implications on a person’s future well-being. Suggesting, that perhaps Billy Crystal’s statement, made in a comic skit, actually had more truth in it than originally intended.

In everyday life, people work hard to be seen by others in a particular light. The way a person wants to be perceived can change based on the circumstances and the audience. Perhaps a boss wants to be perceived as intimidating by her employees but humors by her friends, perhaps a student wants to be perceived as intelligent in the classroom but laid back at home, or perhaps a person would like to be perceived as kind by her family but tough by her co-workers. No matter what perception is desired at the current moment, impression management strategies are often

employed to create that particular impression. This research will introduce a novel impression management strategy, sharing specific autobiographical memories as stories that are designed to create a desired impression. Importantly, this impression management strategy is not about picking the correct autobiographical memories to share as previous literature has investigated (Kunda; 1990; Sanitioso, Fong, & Kunda, 1990), rather it concerns taking any specific autobiographical memory and transforming it into a story to create a desired impression. It involves memory distortion, not just selectively choosing an autobiographical memory. This novel impression management strategy will be referred to as memory enhancement and the long-term implications of using this impression management strategy to distort autobiographical memories will be explored.

Impression management strategies are often most clearly observed among politicians and celebrities. Politicians are a special case in that their job literally depends on what people think about them. As such politicians tend to be a prime example of impression management strategies, including memory enhancement. Consider for example, Ben Carson's very publicized and misguided attempt to win voters over by sharing a previous experience. Ben Carson was caught on record criticizing the way some people reacted to a gunman. To prove he knew what he was talking about, or possibly in a misguided attempt to relate to the victims and their families, Ben Carson recounted an event in which he was held at gunpoint. In a recorded interview, Ben Carson recounted being held at gunpoint at a Popeye's restaurant (a fast food fried chicken restaurant) in downtown Baltimore. He commented, "Guy comes in, put the gun in my ribs. And I just said, 'I believe that you want the guy behind the counter'". Carson goes on to explain how he calmly redirected the gunman to the store clerk and watched the gunman run down the street being chased.

Ben Carson wanted to create a specific impression by telling this story about being held at gunpoint. He took a previous experience and crafted it into a story that was designed to create a particular impression. He wanted to sway voters into believing that he could relate to their fears of gun violence and that he was the type of person who would respond in a calm manner to being held at gun point. He too had been a victim of gun violence but he knew how to respond to the crisis. Ben Carson took a previous experience from his own life and carved it into a story that was designed to create a specific impression in the mind of voters. This is an example of a novel form of impression management, referred to as memory enhancement, that will be explored in this paper.

In Ben Carson's example, his use of memory enhancement may have been successful, if it were not put under the microscope. However, due to his fame and our current digital age, people quickly began fact checking Ben Carson's story. Unfortunately for Ben Carson, there did not seem to be any record of any Popeye's being robbed in the Baltimore vicinity during the time period Ben Carson gave. Before long people everywhere were skeptical of Ben Carson's story and the evidence seems to suggest it never happened. This leaves us with two possibilities. One possibility is that Ben Carson outright lied from the beginning. This is possible; however, Ben Carson is a well-educated man, who probably would have guessed people would always fact check his story. The second possibility is that Ben Carson was being honest but his recollection came from an imperfect memory.

This second possibility leads us to a problem that may arise when one decides to use the impression management strategy of memory enhancement. Autobiographical memory is not perfect. In fact, the way a person shares an autobiographical memory can have a lasting impact on the way the information is remembered in the future (Tversky & Marsh, 2000). It is possible

that Ben Carson has told this memory as a story that was formed to create a particular impression multiple times in the twenty years since the supposed event took place. Perhaps, he first made the story more entertaining by saying the man had a gun instead of a knife to impress his date. Then imagine he did not want his mom to know he ate at KFC (another fast food fried chicken restaurant) so he inserted Popeye's into the story instead. Telling slightly altered versions of his memory repeatedly caused changes in his actual memory of the event. Over time the story he told to create a specific impression became his reality.

If this is the case, then Ben Carson did not necessarily lie when he told the nation of his experience of being held at gun point in a Popeye's in downtown Baltimore. Rather, Ben Carson was a victim of human memory. Ben Carson took an event in his life and transformed it into an entertaining story. This is a common occurrence, in fact undergraduate students admit to exaggerating when telling others about a previous event approximately half the time (Marsh & Tversky, 2004). Encouraging this tendency is the finding that good story tellers are revered in our culture and the best stories have qualities that rarely occur in everyday life (Donahue & Green, 2016; Ulatowska et al., 2004). Suggesting that people, like Ben Carson, are often sharing previous events in slightly untrue ways. Overtime, these story tellers may not even be aware of such deviations from the truth because their memories have truly been altered.

In the future, these altered memories will be recalled when a person reflects upon his or her life. One primary reason for personal recollection of previous experience is to form or maintain a sense of self (Bluck, Alea, Haermas, & Rubin, 2005; Conway & Pleydell-Pearce, 2000; Lampinen, Beike, & Behrend, 2004). If the memories that are being used to create a sense of self have been altered to present oneself in a particular light then, over-time, the self may also be altered. It is possible that Carson's altered recollection of being held at gunpoint also changed

how Carson saw himself as a person. Perhaps to Carson, he truly sees himself as a person who has experienced gun violence and who has reacted calmly.

People frequently alter the way they share their previous experiences with other people. Since the way a person shares their previous experiences impacts the way the events are later recalled it is possible that by using the impression management strategy of memory enhancement, people can slightly change their long term memory of the event. Essentially replacing their past with an interesting story. The current research was designed to test this possibility by addressing. First the current study examined if people would alter their autobiographical memories of specific events to create a particular impression. Next, the impact that using memory enhancement may have on the long-term memory of this event was investigated. Lastly, the implications that this may have on a person's self-concept begin to be investigated. An integrative model that theorizes the relationship between impression management, autobiographical memory, and the self (see Figure 1) is proposed.

### **Impression Management**

Erving Goffman (1959) suggested that people are like actors who are in a constant struggle to convey a particular image to others. Impression management refers to the countless strategies people use to control the impression others form of them (Baumeister, 1982; Leary, 1995). Similarly, to how politician attempt to influence the way others think about them by carefully presenting information and perhaps even twisting the truth, people in everyday life use impression management to portray a particular image.

Ben Carson's story is an example of an impression management strategy as it was designed and shared to create a specific impression. This is a unique and newly proposed form of impression management, referred to as memory enhancement. As a newly proposed form of

impression management, memory enhancement has received no empirical prior to this paper. However, there is a literature on impression management in general and a literature focusing on several unique impression management strategies that will be reviewed. Below is a review of the relevant impression management literature.

### **Impression management strategies**

The literature on impression management strategies is somewhat unorganized and lacking. Authors use different words for the same strategy and several articles have been published that simply attempt to name and categorize all possible impression management strategies with little or no empirical evidence (Bolino, Kacmar, Turnley, & Gilstrap, 2008). However, several impression management strategies have been identified and are generally accepted as unique forms of impression management (Bolino et al. 2008).

Next the literature on the accepted forms of impression management strategies will be explored. To begin examining the impression management literature, it is important to understand that these strategies are often divided into two wide-ranging types of strategies: defensive and assertive strategies (Ellis, West, Ryan, & DeShon, 2002; Stevens & Kristoff, 1995). Defensive impression management strategies are used to retain an already created image of the self, while assertive impression management strategies are employed in an attempt to create a particular impression.

**Defensive Impression Management Strategies.** Defensive impression management strategies are often employed when a person believes their current reputation or status is in jeopardy. Defensive impression management strategies can be used to explain away an embarrassing moment or a poor performance (Caldwell & O'Reilly, 1982). These have been identified as making excuses, making apologies, self-handicapping, and creating disclaimers.

Essentially defensive impression management strategies are ways to deflect blame after a negative experience.

Defensive impression management strategies are employed so that others will not change their impression in a negative direction, however they rarely work. In fact, defensive impression management strategies are likely to backfire. Literature suggests that the use of defensive impression management often creates an even more negative impression (Hirt, McCrea & Boris, 2003; Luginbuhl & Palmer, 1991; Feick & Rhodewalt, 1997; Wayne & Liden, 1995). When a person uses a defensive impression management strategy, such as creating excuses, the person is unlikely to get better on the given dimension (Giacalone & Knouse, 1987). The audience (other people) tends to see past the defensive management strategies and perceive an inability to take responsibility. This failure to recognize one's mistakes or lack of skill is seen as a failure to communicate adequately the need for help, which causes frustration in others, leading to negative perceptions. Despite repeated failure, defensive impression management strategies continue to be used often after a person experiences an event that could cause harm to their current status or reputation (Caldwell & O'Reilly, 1982).

**Assertive Impression Management Strategies.** Assertive impression management strategies are used to create a certain impression, instead of repairing or retaining a certain image. Assertive impression management strategies are much more successful at creating a positive image than defensive impression management strategies (Gilmore & Ferris, 1989; Wayne & Kacmar, 1991). The use of assertive impression management strategies is correlated with a wide range of positive social outcomes. For example, the use of assertive impression management strategies in the workplace is positively correlated with favorable feedback in an interview setting, positive outcomes in hiring decisions, and promotions to higher ranks within a

company (Gilmore & Ferris, 1989; Stevens & Kristof, 1995; Tsai, Chen, & Chiu, 2005; Westphal & Stern, 2006).

Literature has identified several unique forms of assertive impression management strategies that can lead to different outcomes and behaviors (Bolino et al, 2008). The most researched and unique impression management strategies will be reviewed to understand where memory enhancement would fit into the literature. This will include four distinct impression management strategies: other enhancement (flattery or praise), opinion conformity, favor doing, and self-presentation.

***Other Enhancement.*** The first impression management strategy to be reviewed is known as other enhancement. Other enhancement, as the name suggests, is a form a flattery or praise in which a person compliments someone else's personal characteristics in order to create a desired impression, such as being likable or nice. For example, if Ben Carson, told a fellow presidential candidate that he liked his hair (even if he did not), he would be participating in other enhancement.

Other enhancement often occurs in retail settings; therefore, much of the research on other enhancement stems from marketing. People frequently report that salespersons employ other enhancement to increase the likelihood of making a sale (Bailey, 2015). Although many consumers claim this impression management strategy is annoying, it can be surprisingly effective (Chan, Sengupta, 2010). The use of assertive impression management strategies by salespersons, including other enhancement, is positively correlated with customer satisfaction (Medler-Liraz & Yagil, 2013). This suggests that other enhancement is effective in a retail setting, despite reportedly being viewed negatively by customers.

The negative opinion of other enhancement may stem from people who observe the impression management strategy being used on others, while it works on the object of the flattery. In an interesting experiment, participants were assigned to act as an observer, a flatterer, or the object of flattery. The flatterers gave the participants acting as the object of flatterer clear compliments while the observer watched. After the interaction, the object of flattery rated the flatterer to be more likeable and sincere compared to the observers' rankings of the flatterer (Vonk, 2002). A meta-analysis was conducted looking at similar experiments and consistent results were found (Gordon, 1996). It appears that other enhancement is an effective impression management strategy, at least on the object of the flattery.

Plausible explanations for the success of other enhancement include vanity (Vonk, 2002) and the norm of reciprocity (Cialdini & Goldstein, 2004). The object of the flattery may experience an increase in self-esteem due to the compliments. The object of flattery wants to believe these compliments are true so that he or she can continue to feel good about himself or herself (Vonk, 2002). It is also possible that the norm of reciprocity plays a large role in studies where the object of flattery rates the flatterer (Cialdini & Goldstein, 2004). The object of the flattery may feel somewhat indebted to the flatterer and therefore obligated to rate them as more likeable and sincere. Whatever the mechanism, other enhancement seems to be an effective impression management strategy.

***Opinion Conformity.*** The second impression management strategy that will be reviewed is opinion conformity. Opinion conformity is a commonly used impression management strategy that simply involves pretending to have a similar opinion as others. Research consistently finds that people like others who are similar to themselves (Byrne et al., 1971). This suggests that by pretending to have the same opinions and attitudes as others, perceived similarity will increase,

which in turn increases the chances of being liked. An example of opinion conformity would be if Ben Carson were to publicly claim that he dislikes KFC (even if he actually likes it) after reading a survey in which most of his supporters voted they did not like the restaurant. In this example, Carson changes his public opinion to create a particular impression.

Anecdotally, people find opinion conformity to be a little annoying. No one believes that he or she would enjoy a person's company who does not express their own unique opinions. However, research suggests that opinion conformity is an effective strategy at increasing positive impressions (Byrne & Griffit, 1966). Opinion conformity is particularly effective at increasing likeness and favoritism in corporate settings (Kacmar, Carlson, & Bratton, 2004). An employee who uses opinion conformity is more likely to receive positive evaluations and to be promoted (Kacmar, Carlson, & Bratton, 2004). In fact, if the target of opinion conformity believes they directly caused a switch in opinion due to being correct, opinion conformity can be even more effective at increasing positive perceptions (Jones, 1964). Therefore, opinion conformity is an effective impression management strategy that most likely works by increasing perceived similarities.

***Favor Doing.*** The third impression management strategy that will be reviewed is favor doing. Favor doing occurs when a person does something, or offers to do something, for someone else in order to be liked or to create a particular impression. For example, if Carson were to volunteer to read to children at a school in hopes that the PTA would support his nomination, then Carson would be using the impression management strategy known as favor doing.

Favor doing is a strategy that often leads to the desired impression, it may be successful because it displays how much the favor doer likes the target, therefore increasing the chances

that the target will also like the favor doer (Wortman & Linsenmeier, 1977). It is also possible that favor doing would be successful based on the reciprocity principal (Cialdini, et al. 1975; Gouldner & Berkowitz, 1960). The target of the favor may feel somewhat indebted to the favor doer, thereby increasing positive ratings. However, little empirical research has been conducted to directly examine this impression management strategy.

***Self-presentation.*** The last impression management strategy that will be reviewed is self-presentation. Self-presentation is an almost all encompassing term for any overt statement or demonstration of one's characteristics that increase the likelihood of creating a specific impression. Self-presentation includes both the honest presentation of characteristics and the deceitful presentation of false characteristics. For example, if Carson wanted to be perceived as a well-traveled individual, he may mention all the countries he has recently visited (even exaggerating or lying about some of the countries) or post pictures of exotic locations on social media sites.

Self-presentation has been demonstrated to be an effective impression management strategy (Bolino, et al. 2008). In business settings, potential job applicants are more likely to be recommended for a position by the hiring department when self-presentation strategies are used (Hazer & Jacobson, 2003). When an applicant presents positive information about himself or herself, then he or she is more likely to create an impression of being an effective future employee. This demonstrates that self-presentation strategies can be used to effectively create a specific impression.

Research suggests that self-presentation is increasingly being employed in online settings (Back, et al. 2010; Doster, 2013). Online settings allow people to easily present information about the self to create specific impressions. In many circumstances people use deception in

online setting to self-present a specific image (Toma & Hancock, 2008). For instance, people often lie about their height and weight in an online setting (Spencer, Appleby, Davey, & Key, 2002). Several studies indicate that this occurs due to social desirability effects (Klesges et al., 2004; Larson, 2000). People believe others will form a better impression if they lie about their height and/or weight. However, distortions of height and weight greatly decrease when participants are told that measurements will actually be taken (DeAndrea, Tong, Liang, Levine, & Walther, 2012). It seems that people are aware that they are presenting false information and do not want to get caught.

Being caught self-presenting inaccurate information can be more damaging than helpful. Research suggests that self-presentation is only successful when it is used correctly and this involves not being caught presenting inaccurate information (Jones, 1964). If a person is caught presenting an inaccurate image, or their self-presentation comes across as boastful, the benefits are lost. Due to this, people have developed subtle ways to use self-presentation. These include using status symbols (Harmon-Jones, Schmeichel, & Harmon-Jones, 2009) and boasting about associations with successful individuals (Cialdini & Nicholas, 1989).

The use of status symbols is evident in academic settings. Colleges that rank lowest on national lists of colleges are more likely to list all of the titles of each professor on their web site (Harmon-Jones, Schmeichel, & Harmon-Jones, 2009). Professors at universities individually display this tendency as well. Professors who have not been as successful in publishing papers and getting their work cited were more likely to include their titles as an attachment signature on emails (Harmon-Jones, Schmeichel, & Harmon-Jones, 2009). By using these status symbols, universities and professors are able to assert positive information about themselves without seeming boastful.

Bringing up associations one has with favorable others is a commonly employed nonchalant impression management strategy that falls under the umbrella of self-presentation. Cialdini and Nicholas (1989) found that when participants were given a trivial connection, such as sharing a birthday, with a person described as favorable the participants would later bring up the association. If the person was described as unfavorable participants would avoid bringing up the association. Participants took this insignificant fact about themselves and strategically used this information. Participants brought up the information if they believed it would create a better impression and avoided bringing up the information if they believed it would create a negative impression. This suggests that people monitor the information that they self-present in order to create a specific impression.

### **Impression Management Summary**

The literature on impression management strategies suggests three key points that are relevant to the current experiment. The first key point is that people regularly use impression management strategies to shape a specific impression in the minds of others. The second key point is that assertive impression management strategies, unlike defensive impression management strategies, tend to be successful and often lead to the desired outcome. The third key point is that there is no current research that investigates the proposed impression management strategy of memory enhancement.

### **Research Question 1**

Based on the current impression management literature it is clear that in many situations, people will employ a wide variety of impression management strategies to create a specific impression in the minds of others. The first research question that will be addressed is **if people will employ the proposed impression management strategy of memory enhancement.** Will

people transform their previous events into stories that create a specific impression? The current experiment was designed to determine if participants would alter the way they shared two predetermined previous experience to create a specific impression. Although previous literature has demonstrated that people will selectively choose which autobiographical memories to share, (Kunda; 1990; Sanitioso, Fong, & Kunda, 1990), no prior research has investigated if people will distort the way autobiographical memories are shared to create a specific impression when forced to recall a specific, predetermined event.

In this experiment, participants were put into a situation in which they believed they had to create a specific impression to avoid the task of completing calculus problems. Participants were then asked to report their specific autobiographical memories of the events on two predetermined occasions (their first day of college and their most recent New Year's Eve). It is hypothesized that participants will employ memory enhancement by sharing these previous experiences in strategic ways to create the impression that will decrease the likelihood of being assigned to complete calculus problems.

If the use of memory enhancement is established, it is theorized to be closely related to self-presentation. In fact, given the almost all encompassing definition of self-presentation, memory enhancement could be considered a sub-type of self-presentation. By creating a story that involves exaggerating and editing the real events that occurred in a person's life, a person can strategically present certain information about themselves. This can be done without seeming boastful or arrogant. If previous experiences are shared in strategic ways, other people are able to draw their own conclusions about the person from the "evidence" of a previous experience. This suggests that memory enhancement could be a particularly effective impression management

strategy because the odds of being caught are extremely low. These characteristics make memory enhancement a particularly useful and possibly powerful impression management strategy.

Ben Carson most likely used memory enhancement when he shared the story about being caught in a robbery. He wanted to create a specific impression in the mind of voters to increase his chances of being elected. He could have accomplished this in a number of ways, yet he decided to do so by sharing a previous experience in the form of a story. Memory enhancement is unique in that a person does not state the conclusion that should be drawn, but convincingly shares the story in a way that leads to such conclusions. Carson did not say to voters, “I understand gun violence and I can relate to you”. Rather he presented voters with a story that illustrates these points. This research empirically investigated if people will use memory enhancement, without being directed to do so, in a controlled laboratory setting.

### **Autobiographical Memory**

Memory enhancement involves making changes to the way an autobiographical memory is disclosed to others. The way an event is shared can have lasting impacts on the memory of the event (Tversky & Marsh, 2000). This suggests that by using memory enhancement, a person may change, at least slightly, their long-term autobiographical memory of an event. As graphically depicted in Figure 1, this research investigated if using memory enhancement as an impression management strategy can have lasting impacts on the way a person remembers the event via autobiographical memory distortion.

For example, suppose that Ben Carson was present for a robbery approximately twenty years ago, imagine that Carson was eating in a restaurant when a robber pointed a semi-realistic looking water gun at the cashier and insisted on money. The cashier nervously gave the robber all of the money in the register and the robber quickly left the restaurant. Ben Carson nervously

watched these events unfold from a nearby booth but was not personally approached by the robber.

If this occurred, it is likely that Carson went on to disclose these events with others. However, further imagine that Carson wanted to create a specific impression on the listeners, so he tells a story of the events in a slightly altered way. Perhaps, Carson told others that the gun was a pistol instead of being a realistic water gun. Maybe Carson exaggerated how close he was to the robber by stating he was standing in line during the robbery instead of sitting across the restaurant at a nearby booth. In order to create an impression that he had an exciting life, or to create the impression that he understood gun violence, Carson slightly exaggerated and altered the events that occurred in order to create a story. Given the nature of human memory, it is possible that over time the details from the created story began to replace the true details in Carson's autobiographical memory. Eventually, the story became Carson's reality.

However, this is only viable if one considers the malleability of autobiographical memory. Although human autobiographical memory is impressive in its ability to hold a large amount of information for a seemingly endless amount of time, it is far from perfect (Berntsen & Hall, 2004; Williams et al., 2008; Wagenaar, 1986). Next, literature that illustrates the possibility that autobiographical memory can be altered over time will be presented. This literature demonstrates that something as small as using memory could have lasting impacts on autobiographical memory.

### **Malleability of Autobiographical Memory**

Research demonstrates that autobiographical memories are susceptible to changes (Loftus, 1974; 1997). For example, the knowledge that other people remember an event differently can impact a person's own recollection of the event. In an interesting experiment,

participants demonstrated their accurate memory of a video. However, after learning that other participants recalled details about the video differently, individual participants began to report an altered memory of the video that was more in line with the details others reported (Edelson, Sharot, Dolan, & Dudai, 2012). The created details were still present in participant's memory of the video when tested two weeks later. Demonstrating that the results were most likely due to a true lapse in memory rather than a social conformity bias.

Although this experiment used a video in place of a real-life event, it demonstrates what is likely to happen in everyday situations. For example, if Carson recalled that the robber wore a gray mask, but another witness suggested it was black mask, Carson may rewrite his autobiographical memory of the incident to include the robber in a black mask. When Carson recalls his autobiographical memory of the incident in the future, he will now remember the robber wearing a black mask.

Research also suggests that people often confuse the details of one autobiographical memory with the details of a similar autobiographical memory (Odegard & Lampinen, 2004). This type of memory error is known as a conjunction error and has long been demonstrated in other types of memories (Jones & Jacoby, 2001). In a diary study, it was confirmed that people often commit memory conjunction errors in their autobiographical memory as well (Odegard & Lampinen, 2004). People often confuse the details from similar experiences. For example, if Ben Carson went to lunch every day at the local Popeye's restaurant, Carson may recall one lunch in which he ate fried chicken and assume he was at Popeye's restaurant when he was actually at Kentucky Fried Chicken.

Autobiographical memories may also be susceptible to changes when discussed in everyday conversations. People spend a large amount of their conversations with others

discussing autobiographical memories. In fact, 44% – 95% of conversations involve discussing at least one previous experience (Beike, Brandon, Cole, 2016; Bluck, Alea, Habermas, & Rubin, 2005). However autobiographical memories are rarely shared with complete accuracy (Marsh & Tversky, 2004). Rather, when autobiographical memories are shared in conversations, they are often altered to better fit the current audience or current goal (Adams, Smith, Pasupathi, & Vitolo, 2002; Marsh & Tversky, 2004; Pasupathi, Stallworth, & Murdoch, 1998).

In one interesting research paradigm, participants who retold a story from memory to a camera in an entertaining way or an accurate way, later remembered the story as they retold it, not as how it was first encoded (Dudukovic, Marsh, & Tversky, 2004). In another experiment, students wrote letters of recommendation or letters of complaint about a roommate from a story. These students cherry-picked details from the story to fit their current goal of writing the letter of recommendation or a letter of complaint. Later, these students demonstrated a biased retelling of the story in which the cherry-picked details were more pronounced or exaggerated and the other details were minimized or forgotten (Tversky and Marsh, 2000). In everyday life, people share their personal experiences with many different goals in mind, one goal that is often in mind is the goal to create a particular impression. It is likely that the goal a person has in mind changes the way previous events are shared and later remembered.

Even when a person does not intentionally alter the way an event is retold, the long-term memory of the event can be impacted. French, Garry, and Mori (2008) divided participants into dyads with either a stranger or a romantic partner. Each member of the dyad separately watched slightly different versions of a video then discussed the video together. After the discussion, participants were asked to accurately recall the events from the video. If a detail from the video was discussed in the conversation, it was more likely to be incorrectly reported. This was even

more evident for romantic partners compared with strangers. These findings suggest that simply discussing a topic with another person, even in a laboratory setting where accuracy is valued, can alter a person's memory for an event.

The way a person is asked about an event can also alter his or her long-term memory of the event. Eyewitness testimony often hinges on a person's ability to accurately remember a crime. However, the wording used during questioning can alter a witness's memory of the event. For example, by simply replacing the word hit with the word smash, witnesses remembered an automobile accident to be much more serious (Loftus & Palmer, 1974). These results brought attention to potential problems with eyewitness testimony; sometimes something as simple as how a question is asked can alter a witness's memory. These results demonstrate that a person's recollection of a previous experience is vulnerable to even the smallest of outside influences.

Autobiographical memory is so malleable that in certain circumstances some people can form memories for events that never even occurred. In one experiment, Loftus (1997) asked each participants' family to provide three experiences that happened to the participant in childhood. From the details provided, one additional experience that never happened to the participant was created. The participants read the four experiences and were told that their family members had provided all four stories. Participants were then asked if they personally remembered the events. Twenty-nine percent of participants claimed to remember the created event that never occurred. This demonstrated that participants can create a false memory of an event that never even happened under the right circumstances.

The idea that entirely false memories can be created is intriguing, however, in everyday life it is most likely that changes to autobiographical memories are minor and based on plausible events (Mazzoni, Loftus, Kirsch, 2001). It is unlikely that a person would create a memory that

he or she spent his or her 16<sup>th</sup> birthday on the moon. However, twenty percent of people self-report that they have at least one autobiographical memory that they know never occurred (Mazzoni, Scoboria, Harvey, 2010). In experimental settings, researchers have created false memories in participants that participants continue to recall even after being debriefed (Clark, Nash, Mazzoni, 2012). This suggests that people are capable of creating false, yet plausible, memories in their everyday life and people are aware that this occurs.

Together research examining the malleability of autobiographical memory paints a clear picture, autobiographical memory is susceptible to error. A person's recollection of the events and the details in their life can be altered by suggestion, by the goal a person has in mind while recollecting an event, or even by simply discussing an experience with other people. If memory enhancement is used as an assertive impression management strategy then it is likely that memory enhancement has implications for how an event is later remembered.

### **General Self-Knowledge vs. Specific Autobiographical memories**

Most literature on autobiographical memory malleability examines autobiographical memory as a whole, however there is reason to argue that the type of autobiographical memory may influence how malleable it can be. Autobiographical memory is argued to be comprised of both semantic information about the self and episodic memories of personal experiences (Roedinger & Marsh, 2003). As such, autobiographical memory is typically divided into two categories: general self-knowledge and specific autobiographical memories (Conway, 2005, Klein, Robertson, Gangi, Loftus, 2008).

General self-knowledge is essentially the semantic knowledge a person has about himself or herself. This includes any knowledge that is not tied to one specific event. Including traits, likes and dislikes, or memories of events that lasted for more than one day (Conway, 2005, Klein

et al., 2008). Even knowledge that a person has about himself or herself that is not personally remembered, such as where he or she was born, is usually included in general self-knowledge (Roediger & Marsh, 2003). For example, a Carson's knowledge that he was born in Detroit, Michigan, is married to Candy, and his recollection of spending years in medical school would be considered general self-knowledge.

Specific autobiographical memories include any memory of a specific event, lasting less than one day, that has occurred in a person's life. Specific autobiographical memories are typically vivid recollections of a specific time and place (Johnson, Foley, Suengas, & Raye, 1988; Williams, Conway, & Baddeley, 2008). For example, Carson's recollection of his first day in medical school or of his wedding day would be considered specific autobiographical memories.

These two types of autobiographical memories are intertwined, however there is reason to believe that memory enhancement will differentially impact each type. For example, people suffering from psychopathologies, including Major Depressive Disorder and Posttraumatic Stress Disorder, show marked differences in their ability to recall specific autobiographical memories compared to general self-knowledge (Williams et al. 2007; Jelovac, O'Connor, McCarron, & McLoughlin, 2016).

Research from neuroscience demonstrates different areas of the brain are activated when thinking of specific autobiographical memories compared to general self-knowledge (Holland, Addis, & Kensinger, 2011; Renoult et al., 2016). Specific autobiographical memory retrieval is associated with more activity in the prefrontal and medial temporal lobes compared to the retrieval of general autobiographical memories (Holland, Addis, & Kensinger, 2011). These brain regions are typically recruited for memory search and retrieval processes. Possibly

suggesting that the retrieval of specific autobiographical memories takes more neurological resources compared to the retrieval of general self-knowledge.

It is possible that more neurological resources required to retrieve a specific autobiographical memory simply because specific autobiographical memories have more details compared to general self-knowledge (Kyung, Yanes-Lukin, Roberts, 2016). According to Schacter and Addis (2007) recalling a specific event requires constructing a memory that is a combination of a multitude of details. These details have to be correctly encoded at the time the event was experienced and correctly pieced back together each time the memory is recalled. General self-knowledge on the other hand typically involves recalling facts. The mere process of remembering specific events tends to be more complicated than recalling a piece of general self-knowledge. It is possible that a more complicated recalling and storing process would be open to more mistakes.

Remembering specific autobiographical memories has also been linked to imagining future events in a way that general self-knowledge has not (Addis, Pan, Laiser, & Schacter, 2009; Mazzoni & Memon, 2003). In neuroscience research, imagining future events and remembering a specific autobiographical memory have been shown to rely on the same brain regions (Schacter & Addis, 2007). It is suggested that this is due to the imagining process of reliving a specific episode that is unique to specific autobiographical memory. This suggests the possibility that specific autobiographical memories may be more susceptible to changes as it is more closely associated with imagination than general self-knowledge.

### **Autobiographical Memory Summary**

The above literature on autobiographical memory suggests two key points that are relevant to the current research being proposed. The first key point is that autobiographical

memory is not an exact recording of everything that has occurred in a person's life. Rather autobiographical memory is malleable and susceptible to memory errors. The second key point is that specific autobiographical memories may be more susceptible to error compared to general self-knowledge.

### **Research Question 2**

Based on the autobiographical memory literature it is clear that under the right circumstances, a person's autobiographical memory can be altered. The second research question that this experiment addresses is **if employing memory enhancement to create a specific impression will have a lasting impact on a person's autobiographical memory.** If people employ memory enhancement to create a particular impression, will their autobiographical memory of the event be altered? It is hypothesized that a participant's memory for an event will be altered if that participant utilized memory enhancement when describing the event. This experiment was designed to test this hypothesis by contacting participants and asking for a new recollection of the same autobiographical memories two weeks after the pressure to create an impression was alleviated. The time period of two weeks was selected as it has been used in similar research paradigms with success (Edelson et al., 2012). Any results found two weeks later would presumably be due to a true change in memory since the pressure to create a specific impression was no longer applied.

Could memory enhancement impact the long-term recollection of specific autobiographical memories more than the recollection of general self-knowledge? Given the current literature on the difference between the two types of memories (Addis et al., 2009; Kyung, et al., 2016; Mazzoni & Memon, 2003; Schacter & Addis, 2007), it was hypothesized that specific memories would be more susceptible to changes compared to general self-

knowledge. This experiment was designed to test this hypothesis by asking participants to report both specific autobiographical memories and general self-knowledge during the experiment and two weeks later. This will allow comparisons between the two types of autobiographical memory.

Ben Carson most likely used memory enhancement when he shared the story about being caught in a robbery to create a specific impression. However, there is an amount of evidence available that suggests his story could not possibly be completely accurate. Many people read this evidence and assume that Carson lied about the incident. However, it is possible that Carson was simply a victim of autobiographical memory malleability. Carson may have altered his actual memory of the event by using memory enhancement. Carson shared the experience as a story that was designed to create a specific impression, is it possible that by doing so, he created a new version of the experience that has become his real memory of the event. This research will investigate if using memory enhancement in a controlled laboratory setting will impact a participant's recollection of an event two weeks later. This will be the first step in understanding the link between memory enhancement and the long-term recollection of the event.

### **The Self and Autobiographical Memory**

As depicted in the model (Figure 1), a person's sense of self is intimately woven with their autobiographical memories. This suggests that when autobiographical memories are altered, a person's sense of self may also be altered. When a person reflects upon a memory that has been altered due to memory enhancement to determine a sense of self, the memory will bring to mind the kind of person that was created. This process essential brings to life the impression that was intentionally designed.

For example, when Carson recalls the robbery, he may recollect the story that he created using memory enhancement. This experience then becomes a part of his self-concept. In his mind, Carson honestly believes he is the kind of person who calmly reacts when faced with a gun. This suggests that using memory enhancement to create a specific impression may have lasting impacts on a person's self-concept via autobiographical memory distortion. Next, literature exploring the intricate relationship between autobiographical memory and the self will be explored as this idea will have implications for the current research.

A person's sense of self is reliant on their autobiographical memory and a person's autobiographical memory is reliant on the self, this is referred to as the self-memory system (Conway & Slidell-Pearce, 2000). The self-memory system posits a dynamic relationship between the self and autobiographical memory. It is theorized that everyone has a central knowledge base. Autobiographical memories are constructed from and stored within this knowledge base (Conway & Pleydell-Pearce, 2000). According to this view, everyone has a base of knowledge about themselves that is referred upon when one attempts to recollect an autobiographical memory.

The self-memory system posits a working self (Conway & Pleydell-Pearce, 2000). The working self is a person's current representation of who they are in any given moment, one could think of this as the decision maker. The working self uses a person's current goals and ideas to retrieve information from the knowledge base and to reconstruct an autobiographical memory. This autobiographical memory may be reconstructed in ways that suit the working self so that the person can more easily accomplish the current goal.

This allows people to insert their current characteristics and goals into their autobiographical memories. When students were asked to write down an early childhood

memory and a recent memory, both memories contained current self-characteristics (Demiray and Bluck, 2011). These results suggest that people remember how they felt and acted in previous experiences, as they would likely approach the situation today. For example, if someone currently views himself as successful neurosurgeon, his working self may selectively pick information from his knowledge base that supports his current self-view. This creates a coherent sense of self over time.

The working self not only allows a person's current characteristics and goals to influence the construction of autobiographical memories, the working self also guides the storage of autobiographical memory information in a person's knowledge base (Conway & Pleydell-Pearce, 2000). By using the working self to construct and store autobiographical memories, a person is able to construct a coherent sense of self that can be used to describe and explain ourselves through time (Bluck, Alea, Haermas, & Rubin, 2005; Conway & Pleydell-Pearce, 2000; Lampinen, Beike, & Behrend, 2004).

Further evidence that autobiographical memories and the self are interdependent comes from developmental research. Infantile amnesia begins to disappear at about the same time that the self begins to emerge (Howe & Courage, 1997). It is possible that a sense of self creates the need for a system of autobiographical memory. It becomes necessary to remember information about the self only after the self develops (Howe & Courage, 1997). It is also possible that a sense of self is formed as a result of having autobiographical memories, the self forms as a result of memories about the self (Fivush & Nelson, 2004). The order of which comes first, autobiographical memory or the self, is often disputed and this argument can quickly digress into a chicken or an egg argument. However, either direction indicates an intimate link between the

two. Humans do not display one without the other for long, both develop at about age two and continue throughout life (Howe & Courage, 1997).

This formation of autobiographical memories and a sense of self are likely intertwined with the development of language skills. Wang (2004) found evidence that children from Western cultures discuss memories that are more enriched and detailed when compared to children from Eastern cultures. When asked to describe themselves, the children from Western cultures described their personal characteristics and unique traits whereas children from Eastern cultures did not. The ways memories are discussed in cultures are theorized to explain these differences in the self-descriptions. This suggests that from an early age, there is a social influence on the self-memory system. How children share information about their past with others, influences how the past is remembered and their sense of self. Perhaps, similar results will be found when one examines how memory enhancement influences the way people share information about their past with others, which can influence how the past is remembered and a person's sense of self.

### **The Self and Autobiographical Memory Summary**

The literature on the intricate relationship between the self and autobiographical memory suggests one key point that has implications on the current research. A person's autobiographical memories and a person's sense of self are intimately woven together. People derive their sense of self from their memories and the self directly impacts how autobiographical memories are recalled and stored. Due to this intricate relationship, it is possible that changes to autobiographical memories could impact a person's sense of self.

### **Research Question 3**

Based on the current literature focusing on the intricate relationship between a sense of self and autobiographical memory, it is clear that a person's autobiographical memory can influence a person's sense of self. The third research question that this experiment addresses is **if employing the impression management strategy of memory enhancement impacts the self-concept via autobiographical memory distortion.** Will long-term changes to the way an event is recalled translate to changes in the self-concept? It is hypothesized that participants who demonstrate altered memories for an event will be more likely to demonstrate a self-concept that was in line with the altered memory. This experiment was designed to test Research Question 3 by examining if participants reported specific autobiographical memory at Time 1 influences their reported sense of self as measured by general self-knowledge on Time 2.

Imagine that Ben Carson used memory enhancement when he shared the story about being caught in a robbery and that this caused his memory for the event to be altered. When Carson thinks about who he is as a person, one event that could potentially come to mind would be his experience during the robbery. It is possible that Carson will contemplate this event and consider himself to be a person who is understanding of gun violence. Overtime, his sense of self may change to be in line with the "new" memory of the robbery.

### **Statement of the Problem**

People generally care about the impression others form of them. As a result, people employ numerous impression management strategies. This research will investigate a new form of impression management, termed memory enhancement. This impression management strategy involves changing specific autobiographical memories into carefully crafted stories to highlight or exaggerate specific personality characteristics to create a desired impression. Although memory enhancement has received no direct empirical attention, research suggests that specific

autobiographical memories are rarely shared exactly as they occurred (Adams et al., 2002; Marsh & Tversky, 2004; Pasputhi, et al., 1998). Rather, specific autobiographical memories are transformed into stories to better fit the current situation (Adams et al., 2002; Marsh & Tversky, 2004; Pasputhi, et al., 1998).

Therefore, this experiment is designed to test if participants will change the way they share their specific autobiographical memory to create a specific impression. This is the first of three research questions this experiment will answer. Importantly, participants will not be able to select instances in which they acted in the way that creates the desired impression, (Kunda; 1990; Sanitioso, Fong, & Kunda, 1990), rather participants will be asked to share their specific autobiographical memory of two predetermined events (their first day of college and their most recent New Year's Eve). Participants will be allowed to share the predetermined specific autobiographical memory in any way they choose. Given the literature on impression management strategies, it is predicted that participants will employ memory enhancement, even in a laboratory setting, to create the desired impression. Therefore, Hypothesis 1a is that participants will use memory enhancement to create a specific impression by transforming their specific autobiographical memories into stories designed to create the desired impression. Hypothesis 1b is that participants will use the impression management strategy of self-presentation by exaggerating their general self-knowledge to better fit the situation. However, it is predicted that this will occur to a lesser degree as memory enhancement is theorized to be a more discreet and a more unintentional form of impression management.

Changing the facts of an event, for any reason, may alter the long-term memory for the event. For example, when participants changed their opinion on a school policy to be more in line with an attractive confederate, the participants later showed an altered memory for their

original opinion (Brady & Lord, 2013). The participants in this experiment demonstrate one scenario in which an impression management strategy, opinion conformity, can have a long-term impact on general self-knowledge. Therefore, Research Question 2 will investigate if using memory enhancement will lead to changes in a person's long-term recollection of the event. Hypothesis 2 is that two weeks after the initial experiment, participants will still display specific autobiographical memories that are in line with the impression they wanted to create two weeks earlier, even after the desire to create a specific impression has been removed.

A person's sense of self is intimately associated with their autobiographical memories. This connection is supported by the theorized self-memory system, which posits that a person's working self constructs autobiographical memories from a person's knowledge base (Conway & Pleydell-Pearce, 2000). People often rely on their autobiographical memories to learn about who they are as a person. People also insert their current self into their previous memories to feel consistent over time. This suggests that changes to autobiographical memories could have impacts on a person's self-concept. Therefore, Hypothesis 3 is that a participant's sense of self measured two weeks after the initial experiment will be impacted by memory enhancement via specific autobiographical memory distortion.

Together, these diverse literatures suggest a dynamic relationship among impression management, autobiographical memories, and the self. As depicted in Figure 1, the way information about the self is shared can alter the long-term memory of the information, which can impact the self-concept. The first link in the model illustrates that people often alter information about the self to achieve social goals by way of memory enhancement. The second link in the model illustrates that the way autobiographical information is shared can have a lasting impact on how the information is remembered. The third link of the model represents the

interconnectedness of the self and autobiographical memory. This model illustrates a proposed mechanism by which a person can become who they pretend to be that has never been investigated. This experiment will be the first to empirically test the model.

### **Experiment**

This study was designed to test the three unique but related research questions outlined above. First this experiment investigated if participants would use memory enhancement by transforming their previous experiences into stories to create a specific impression in a laboratory setting. Next this research investigated if using memory enhancement would cause changes to the way the events are remembered in the future. Lastly, this research investigates if changes to the way a specific autobiographical memory is recalled can create a change in participants' self-concepts.

### **Method**

#### **Participants**

Participants were 415 University of Arkansas undergraduate student volunteers. This number was determined based on the most closely designed experiment that has been published (Brady & Lord, 2013). The results of Brady and Lord's (2013) study were entered into the g-power analysis program. Using conservative parameters, a total of 278 participants were estimated to be required for adequate power by the g-power program. Data collection continued until the end of the semester as some participants were expected to drop out before completing the second portion of the experiment. It was expected that at least 278 participants would complete both portions of the experiment.

Participants were recruited using the online SONA system. All participants were compensated with one credit towards fulfilling their General Psychology credit requirement for

their participation. Twenty-three participants were disqualified due to their preference to complete calculus problems. An additional 33 participants were eliminated from analysis due to their failure to complete both questionnaires. This resulted in approximately 8% of the participants being lost to attrition from Time 1 to Time 2. It is generally accepted that researchers can feel confident in their results as long as 70-80% of their participants complete a longitudinal experiment (Desmond et al. 1995; Fischer, Dornelas, & Goethe, 2001). This experiment falls well above that threshold with over 90% of participants completing the second portion of the experiment.

A total of 359 participants remained after participants were removed for their task preference and due to attrition rates. This resulted in 117 participants assigned to the control condition, 125 participants assigned to the outgoing conditions, and 117 participants assigned to the responsible condition. Of the participants who remained, 71.9% (258) identified as female and 28.1% (101) identified as male. The average age of participation was 19.03 with the minimum age being 18 and the oldest participant being 28 years old. Participants identified as primarily White or Caucasian with 85.8% (308) selecting this ethnicity, 7% (25) of participants identified as Black or African American, 2.8% (10) of participants identified as Asian or Asian American, 0.3% (1) of participants identified as Pacific Islander, 8.6% (31) of participants identified as Hispanic or Latino, and 1.7% (6) of participants identified as Native American. Participants were able to select more than one ethnicity or to skip this question entirely so percentages may not add up to 100%.

### **Procedure**

Participants were presented with the following description as one of many other experiments they could complete towards their general psychology course requirement, “In this

experiment you will schedule a time to come into our lab. At the scheduled time, you will fill out some information about your personality and then you will be assigned to complete one of two possible tasks. The in-lab portion of this experiment will take less than 30 minutes.

Approximately two weeks after the in-lab portion of the experiment, you will receive a link via email to the second portion of the experiment to be completed online. The second portion of the experiment will ask for additional information about your personality and will last less than 30 minutes. You will earn one credit for completing both portions of the experiment”.

This experiment involved two points of contact. During the first portion of the experiment, participants were assigned a time to come into the lab to participate in a 30-minute experiment. After arriving in the lab room, all participants read and signed an informed consent form. Participants were given a cover story at this time. All participants were told by a research assistant that the experiment was designed to investigate how personality differences can impact performance on a wide range of tasks.

Participants were then told that they were going to be assigned to complete one of two possible tasks depending on their personality as determined by the personality questionnaire they were about to take. Participants were told that one task involved rating humorous YouTube videos and is usually described as fun, while the other task is completing math problems similar to those found in a high school Calculus book and is usually described as quite boring and difficult.

Approximately one third of participants were assigned to the outgoing condition, one third of participants were assigned to the responsible condition, and one third of participants were assigned to the control condition. Participants in the outgoing condition were told that they would get to do the “fun” task of rating humorous YouTube videos if the personality

questionnaire demonstrated that they have an outgoing personality. Participants in the responsible condition were told that they would get to do the “fun” task rating humorous YouTube videos if the personality survey demonstrated that they have a responsible personality. Participants in the control condition were told that everyone would be randomly assigned to either rate humorous YouTube videos or to complete Calculus problems. Participants were given these instructions verbally from the researcher conducting the experiment and participants received the same set of instructions visually prior to beginning the personality questionnaire on the computer screen. These instructions were repeated in the hopes that participants would be very aware of the impression they needed to create, therefore making the manipulation as strong as possible.

Participants then took the “personality questionnaire” which consisted of general self-knowledge questions and specific autobiographical memory questions on the in-lab computer as the experimenter waited in the hallway (See Appendix A for a list of the questions). After completing the questionnaire, participants were told by the experimenter that a technical error had occurred with the math program and everyone, no matter their results, would be assigned to rate the humorous videos. All participants watched four YouTube clips that were each approximately 30 seconds long (Arantes, 2012; Compton, 2011; Riley, 2014; Stardestroyer65, 2011). After watching each video, participants filled out a short questionnaire about each video. Participants’ ratings on the videos were not used in any analysis; participants were only asked to rate the videos so that there would no longer be any overt pressure to keep using an impression management strategy during the second portion of the experiment (See Appendix B for a list of the video rating questions). By eliminating the pressure to use an impression management strategy, it was assumed that participants would have no reason to alter their answer on the

follow up questionnaire to be sent two weeks later, other than based on a genuine change resulting from the alteration of their memory at Time 1. Participants were then thanked and instructed to look for an email with a link to the second portion of the experiment in approximately two weeks.

Approximately two weeks after the in-lab portion of the experiment, participants received an email with a link to the second portion of the experiment that was to be completed online. If participants did not fill out the second portion of the experiment, they received a reminder email every other day for one week. After completing the second portion of the experiment, all participants were fully debriefed and received one research credit towards their general psychology requirement.

## **Materials**

**First Questionnaire.** The questionnaire used during the first portion of the experiment began with a reminder of the instructions. It read, “Thank you for participating in Personality and Performance. You will be asked to answer questions about your personality on this questionnaire. You will be assigned to one of two possible tasks after you complete this questionnaire. Participants who have a personality score that indicates they are more outgoing (responsible) will be asked to rate humorous YouTube videos, participants who have a personality score that indicates they are less outgoing (responsible) will be assigned to complete a math task, with problems similar to those found on a high school calculus exam”. Participants who were assigned to the control condition were told that participants would be randomly assigned to complete one of the two tasks no matter what their results on the personality questions. This reminder was designed to reiterate the manipulation to all participants, particularly those who did not listen to the experimenter.

Immediately after reading the above instructions, participants were asked if the instructions had been read and if the participant understood the instructions. If participants answered “No”, the survey was designed to loop participants back to the instructions. The participant had to reread the instructions until the participant indicated that he or she had read and understood the instructions by answering “Yes.”

After reading the instructions, participants moved on to questions about their autobiographical memories. The order of presenting the general self-knowledge questions and the specific autobiographical memory questions was counterbalanced. Approximately half of participants were presented with general self-knowledge questions followed by specific autobiographical memory questions. Whereas the other half of participants were first presented with specific autobiographical memory questions followed by general self-knowledge questions. This design allowed for the statistical analysis of the possibility that answering one type of memory question would impact answers to the other type of memory question.

The general self-knowledge questions were composed of a list of personality traits to which participants were simply asked to indicate on a sliding scale how much the specific trait describes their personality in general. The list included the key personality traits of outgoing, social, responsible, and conscientious. The list also included nine distractor items: negative, introverted, brave, creative, quiet, positive, kind, negative, and open to new experiences. Participants were asked to rate each item on a visual scale of 1 (not at all descriptive of me in general) to 100 (an exact descriptor of me in general).

The specific autobiographical memory questions were composed of questions about two predetermined previous experiences. Participants were first presented with the following explanation “In order to learn about a person’s true personality, research suggests recalling how

someone reacted in a particular setting.” Next participants were presented with the following instructions, “In the text box below, please describe in as much detail as you can recall your first day of college (what did you wear, who was there, how did you feel, etc.).” After describing their first day of college, participants were asked, “what was the best part of the experience?”. The best part of the experience question was designed to allow the participant to narrate the experience by giving it meaning and encourage even more details about the experiment. Participants were also asked the same questions about their most recent New Year’s Eve (See Appendix C for example responses from participants). These two specific events were chosen because each event had to have been experienced by all participants and it was hoped that each event allowed enough variability for the participants to tell the events of each occasion in numerous ways, allowing for participants to use memory enhancement to create either desired impression.

After describing one experience, participants were directed to a new page where their description of the event were presented to them. Participants were asked to read their own description of the event and to think about that specific experience. Next participants were asked to indicate the extent to which each personality trait describes their personality based only on the event description that they provided. The personality traits were the same 13 traits used to measure general self-knowledge. Again, this included the descriptors, outgoing, social, responsible, and conscientious, the nine other distractor items. Participants were again asked to rate each item on a scale of 1 (not at all descriptive of me in the event described) to 100 (an exact descriptor of me in the event described). After rating the first event, participants repeated the same process with the next specific event.

Next all participants answered manipulation check items. These items included questions to be sure participants preferred the “fun” task. Participants were asked the face valid question, “Which task would you prefer?”. Participants were given three options as possible answers, “The video rating task,” “The math completion task,” or “I do not care.” The instructions clearly described the video rating task as the fun task, however 23 participants still preferred the math task over rating humorous videos. The 23 participants who preferred to complete the math task were not included in analyses as they had motivation to create the exact opposite impression as the rest of the participants.

To determine if participants listened to and read the instructions, participants were asked, “Which personality type is more likely to be assigned to the task of rating humorous videos?”. Participants were presented with the options, “Outgoing personalities”, “Responsible personalities”, “Generous personalities”, or “It is randomly determined”. This measure served as a manipulation check and was used to ensure that participants correctly heard and read the instructions for the condition to which they were randomly assigned.

On a separate page, participants were asked several questions to determine their potential intent of self-presentation motives to get the task that they desire. This included 5 items that were combined to form an intent index for general self-knowledge (5 items;  $\alpha = .69$ ). Participants read, “Think back to the responses you gave when you rated your own personality in general to answer the following questions”. The questions include: “To what extent did your knowledge about the tasks influence your responses when rating your personality in general?”, “How honest were you about your personality when rating your personality in general?”, “Did you alter your responses when rating your personality in general in any way based on the information that the experimenter gave you?”, “When rating your personality in general, did you present yourself in a

specific way to increase the chances that you would be assigned to one of the two tasks?”, and “Do you believe your responses when rating your personality in general accurately represents who you truly are? (reversed)”. All items were answered on a scale of 1 (not at all) to 10 (extremely).

Next participants were asked questions to determine if participants were aware of any intentional self-presentation in the specific autobiographical memory questions. This included 5 items that were combined to form an intent index for specific autobiographical memories (5 items;  $\alpha = .68$ ). Participants read, “Think back to the responses you gave when you described your previous experiences (your first day of college and your last New Year’s Eve) to answer the following questions.” The questions included: “To what extent did your knowledge about the tasks influence your responses when you described your previous experiences?”, “How honest were you about your personality when rating your previous experiences?”, “Did you alter your responses when you described your previous experiences in any way based on the information that the experimenter gave you?”, “When describing your previous experiences, did you present yourself in a specific way to increase the chances that you would be assigned to one of the two tasks?”, and “Do you believe your descriptions of your previous experiences accurately represents who you truly are? (reversed)”. All items were answered on a scale of 1 (not at all) to 10 (extremely).

Lastly, participants completed demographic information questions. This included questions about gender (male, female, other, or prefer not to disclose), age, and ethnicity (White/Caucasian, Black/African American, Asian/Asian American, Pacific Islander, Hispanic/Latino, Native American, or Other). Participants were allowed to choose more than one ethnicity.

Lastly, participants were presented with a page that thanked the participant for their participation and reminded the participant that the second portion of the experiment would be sent via email in approximately two weeks. Participants were given an opportunity to leave an email other than the email listed on SONA if preferred. Participants were then allowed to leave the laboratory. Participants were not debriefed at this point. Debriefing could have, potentially, impacted the results of the second questionnaire, therefore debriefing could not occur until after the second questionnaire.

**Second Questionnaire.** Approximately two weeks after completing the in-lab portion of the experiment, participants received an email with a link to the second questionnaire. This questionnaire included the same questions about personality traits (general self-knowledge) and about previous experiences (specific autobiographical memories). The general self-knowledge questions and the specific autobiographical memory questions were presented in the same counterbalanced order as used in the first questionnaire. If a participant saw the specific autobiographical memory questions before general self-knowledge questions in questionnaire 1, then that same participant saw the specific autobiographical memory questions before general self-knowledge questions in questionnaire 2.

Next participants were asked about the potential differences and similarities between the two questionnaires. Participants were asked, “How similar do you believe your responses on this questionnaire were to your responses on the first questionnaire?”. Participants responded to this question on a scale from 1 (not at all similar) to 10 (very similar).

Lastly, participants were presented with a page that fully debrief participants on the experiment. Participants were informed of the true nature of the experiment, including the potential benefits and potential risks of using the proposed impression management strategy of

memory enhancement. Participants were then given contact information in case they had further questions about the experiment. No participant used this information to contact the researcher. Participants were then thanked for their participation.

The amount of time it took participants to complete questionnaire 1 and questionnaire 2 was recorded. A timer began when participants opened the survey and the timer stopped when the participant closed the survey. This information was used to examine difference in amount of time it took participants to complete the survey by condition and if there were any significant difference between participants who saw one type of questions (either specific autobiographical memory questions or general self-knowledge questions) first.

Participants were assigned one-credit towards their general psychology class requirement after completing the second questionnaire. At the end of the semester, any participants who did not complete the second questionnaire but participated in the first questionnaire were also given full credit. It was assumed that no response on the second questionnaire indicated withdraw from the experiment. All participants were allowed to withdraw at any time with no loss of benefits, so these participants received full credit. This experimental method as described above was submitted to, and received full approval by, the institutional review board at the University of Arkansas (see Appendix D).

## **Results**

### **Manipulation Checks**

It was essential to the design of the experiment that participants not prefer to complete the calculus problems over rating the humorous YouTube videos. Therefore, participants' responses to the question, "Which task would you prefer?", were used to determine if a participant's results were eligible for analysis. Participants who indicated a preference for the

calculus problems were eliminated from analysis. This resulted in 23 participants being excluded from analysis based on their preference to complete math problems.

Responses to the measure, “Which personality type is more likely to be assigned to the task of rating humorous videos?” were used to serve as a manipulation check. As depicted in Table 1, a chi-square test for independence indicated a significant association between condition and personality type in the expected direction ( $\chi^2(6, n = 359) = 514, p < .001, V = .85$ ). As predicted, 95.2% of participants in the outgoing condition correctly selected outgoing personalities, 91.5% of participants in the responsible condition correctly selected responsible personalities, whereas 77.8% of participants in the control condition correctly selected that it is randomly determined. This pattern suggests that the manipulation was strong enough for participants to understand which personality group would be assigned to the task fun task of rating humorous videos. The following analyses were conducted excluding the participants who incorrectly answered the manipulation check, however results did not vary significantly with or without including the participants who failed this manipulation check question. Therefore, the results of the manipulation check suggest that participants could use impression management strategies to create the desired personality because they were aware of which personality would allow them to complete the desired task.

### **Research Question 1**

In order to test if participants engaged in the proposed impression management strategy of memory enhancement, participants’ responses on the first questionnaire were examined. First the participants’ responses to the specific autobiographical memory questions were used to determine if participants distorted their previous experiences to create the impression currently desired, thereby engaging in memory enhancement. Second participants’ responses to the general

self-knowledge questions were examined to determine if the impression management strategy of self-presentation was used by exaggerating general self-knowledge to create the impression currently desired.

Hypothesis 1a is that participants will use the proposed impression management strategy of memory enhancement by emphasizing the personality type (either outgoing or responsible) that will increase their chances of being assigned to the “fun” task of rating videos by distorting their specific autobiographical memories in such a way that their personality is in line with the desired personality trait (either outgoing or responsible). Hypothesis 1b is that participants will use the impression management strategy of self-presentation to emphasize the personality type that will increase their chances of participating in the “fun” task of rating videos by exaggerating the desired personality traits (either outgoing or responsible) on the general self-knowledge questions.

**Hypothesis 1a.** To test Hypothesis 1a participants’ self-ratings on personality dimensions based solely on the described experiences were compared across condition to determine if participants used memory enhancement to create the currently desired impression. It was predicted that participants in the outgoing condition would report specific autobiographical memories that are rated as more indicative of outgoingness compared to specific autobiographical memories reported by the other two conditions. It is also predicted that participants in the responsible condition will report specific autobiographical memories that are rated as more indicative of responsibility compared to the specific autobiographical memories reported by the other two conditions.

Participants’ read their own descriptions of each specific autobiographical memory that they reported and rated their personality on several personality traits based only on the

descriptions that they reported. The participants' ratings on the two personality traits designed to measure outgoingness (outgoing and social) were found to be highly correlated across both specific memories (4 items;  $\alpha = .76$ ). These four items were averaged together to create a specific sociability index for the specific autobiographical memory questions from the first questionnaire. The specific sociability index was submitted to 2 (Order: Specific first or General first) x 3 (Condition: Outgoing, Responsible, or Control) analysis of variance. As depicted in Table 2 and as predicted, a main effect of condition,  $F(2, 352) = 4.67, p = .01, \eta_p^2 = .03$ , was revealed. Tukey post hoc analysis revealed the predicted differences between condition such that participants in the outgoing condition ( $M = 74.15, SD = 18.26$ ) rated their specific autobiographical memories as significantly ( $p = .02; p = .04$ ) more indicative of outgoingness compared to the responsible condition ( $M = 68.31, SD = 17.22$ ) and compared to the control condition ( $M = 67.55, SD = 19.58$ ), see Figure 2. Participants did not rate their specific autobiographical memories as more indicative of outgoingness in the responsible condition ( $p = .95$ ) compared to the control condition. A main effect of order was also present,  $F(1, 352) = 4.64, p = .03, \eta_p^2 = .01$ , such that participants who first reported a specific autobiographical memory rated their specific autobiographical memories as more indicative of outgoingness ( $M = 72.26, SD = 17.83$ ) compared to participants who first reported general self-knowledge ( $M = 68.02, SD = 19.05$ ). No significant interaction of condition and order was discovered,  $F(2, 352) = .74, p = .48, \eta_p^2 = .004$ , see Table 3.

Participants' read their own descriptions of each specific autobiographical memory that they reported and rated their personality on several personality traits based only on the descriptions that they reported. The participants' ratings on the two personality traits designed to measure responsibility (responsible and conscientious) were found to be highly correlated across

both specific memories (4 items;  $\alpha = .53$ ). These four items were averaged together to create a Specific Responsibility Index for the specific autobiographical memory questions from the first questionnaire. This Specific Responsibility Index was submitted to 2 (Order: Specific first or General first) x 3 (Condition: Outgoing, Responsible, or Control) analysis of variance. As depicted in Table 4 and as predicted, a main effect of condition,  $F(2, 353) = 8.79, p < .001, \eta_p^2 = .05$ , was revealed. Tukey post hoc analysis revealed the predicted differences between condition such that participants in the responsible condition ( $M = 64.64, SD = 13.83$ ) rated their specific autobiographical memories as significantly ( $p < .001$ ) more indicative of responsibility compared to the outgoing condition ( $M = 57.40, SD = 15.96$ ), see Figure 3. Participants in the responsible condition did not rate their specific autobiographical memories as significantly ( $p = .31$ ) more indicative of responsibility compare to the control condition ( $M = 62.02, SD = 12.15$ ). Participants in the outgoing condition rated their specific autobiographical memories as significantly ( $p = .01$ ) less indicative of responsibility compared to the control condition. A main effect of order was also present,  $F(1, 353) = 12.03, p = .001, \eta_p^2 = .03$ , such that participants who first reported general self-knowledge rated their specific autobiographical memories as more indicative of responsibility ( $M = 63.76, SD = 13.06$ ) compared to participants who first reported specific autobiographical memories ( $M = 58.61, SD = 14.40$ ).

A significant interaction of condition and order was also discovered when the Specific Responsibility Index was analyzed,  $F(2, 353) = 5.16, p = .006, \eta_p^2 = .03$ . Follow-up simple effects tests were conducted to investigate this interaction. When only examining participants who first answered general self-knowledge questions, a significant difference appeared such that the participants in the responsible condition ( $M = 67.87, SD = 13.23$ ) rated their specific autobiographical memories as significantly ( $p = .04$ ) more indicative of responsibility compared

to participants in the outgoing condition ( $M = 62.17$ ,  $SD = 13.16$ ) and significantly ( $p = .02$ ) more indicative of responsibility compared to participants in the control condition ( $M = 61.40$ ,  $SD = 12.00$ ). These simple effect tests revealed no difference between the control condition and the outgoing condition ( $p = .94$ ). When only examining participants who first answered specific autobiographical memory questions, a significant difference appeared such that participants in the responsible condition ( $M = 61.25$ ,  $SD = 13.75$ ) rated their specific autobiographical memories as significantly ( $p = .004$ ) more indicative of responsibility compared to participants in the outgoing condition ( $M = 52.40$ ,  $SD = 17.18$ ). However, participants in the responsible condition did not rate their specific autobiographical memories as significantly ( $p = .86$ ) more indicative of responsibility compared to the control condition ( $M = 62.69$ ,  $SD = 12.39$ ). These simple effect tests also revealed a significant difference between the control condition and the outgoing condition ( $p = .001$ ), see Table 5.

In order to be sure that participants really based their responses solely on the specific experiences described, coders also rated the specific autobiographical memories that the participants reported on the first and second questionnaire. Nine research assistants, working independently, were assigned to read the event descriptions and the responses to “What was the best part of this experience” of all the specific autobiographical memories of one event type (either the participant’s first day of college or the participant’s most recent New Year’s Eve). Next each research assistant was assigned to rate each participant on a 100-point scale (in which 1 = not at all and 100 = extremely) on either the personality traits designed to measure outgoingness (outgoing and social) or the personality traits designed to measure responsibility (responsible and conscientious).

Participants' read their own descriptions of each specific autobiographical memory that they reported and rated their personality on several personality traits based only on the descriptions that they reported. The participants' ratings on the two personality traits designed to measure responsibility (responsible and conscientious) were found to be highly correlated across both specific memories (4 items;  $\alpha = .53$ )

Two independent coders' ratings on the two personality traits designed to measure outgoingness (outgoing and social) after reading the specific autobiographical memories of the first day of college were found to be highly reliable on the first questionnaire (4 items;  $\alpha = .73$ ) and on the second questionnaire (4 items;  $\alpha = .81$ ). Three independent coders' ratings on the two personality traits designed to measure outgoingness (outgoing and social) after reading the specific autobiographical memories of New Year's Eve were found to be highly reliable on the first questionnaire (6 items;  $\alpha = .80$ ) and on the second questionnaire (6 items;  $\alpha = .78$ ). The five coders' ratings on the personality traits designed to measure outgoingness (outgoing and social) across both events were found to be highly reliable on the first questionnaire (10 items;  $\alpha = .79$ ) and on the second questionnaire (10 items;  $\alpha = .81$ ). Therefore, the coders responses to both social items across the two events were averaged together to create a Coders' Sociability Index for questionnaire 1 and a separate Coders' Sociability Index 2 for questionnaire 2.

Two independent coders' ratings on the two personality traits designed to measure responsibility (conscientious and responsible) after reading the specific autobiographical memories of the first day of college were found to be highly reliable on the first questionnaire (4 items;  $\alpha = .53$ ) and on the second questionnaire (4 items;  $\alpha = .51$ ). Two independent coders' ratings on the two personality traits designed to measure responsibility (conscientious and responsible) after reading the specific autobiographical memories of New Year's Eve were found

to be highly reliable on the first questionnaire (4 items;  $\alpha = .69$ ) and on the second questionnaire (4 items;  $\alpha = .73$ ). The four coders' ratings on the two personality traits designed to measure responsibility (conscientious and responsible) across both events were found to be highly reliable on the first questionnaire (8 items;  $\alpha = .75$ ) and the second questionnaire (8 items;  $\alpha = .76$ ). Therefore, the coders responses to both responsibility items across the two events were averaged together to create a Coders' Responsibility Index for questionnaire 1 and a separate Coders' Responsibility Index 2 for questionnaire 2.

These ratings were used to determine objective differences of the personality traits based only on the two specific events. In line with Hypothesis 1a, it was hypothesized that coders would rate participants' specific memories as being significantly more indicative of outgoingness in the outgoing condition compared to the responsible condition, with the control condition falling in the middle. It was also predicted that coders would rate participants' specific memories as being significantly more indicative of responsibility in the responsible condition compared to the outgoing condition, with the control condition falling in the middle.

The coders' ratings of participants' specific autobiographical memories from the first questionnaire for the two personality traits designed to measure outgoingness (outgoing and social) were averaged together to create a Coders' Specific Sociability index for each participant. The Coders' Specific Sociability index was submitted to 2 (Order: Specific first or General first) x 3 (Condition: Outgoing, Responsible, or Control) analysis of variance. As depicted in Table 6 and as predicted a main effect of condition,  $F(2, 340) = 5.55, p = .01, \eta_p^2 = .03$ , was revealed. Tukey post hoc analysis revealed that this main effect was due to coders rating the specific memories reported by the outgoing condition ( $M = 62.89, SD = 13.19$ ) as significantly ( $p = .01$ ) more indicative of outgoingness compared to the specific autobiographical memories reported by

the control condition ( $M = 57.94$ ,  $SD = 13.91$ ) and significantly ( $p = .02$ ) more indicative of outgoingness compared to the specific autobiographical memories reported by the responsible condition ( $M = 58.31$ ,  $SD = 10.81$ ), see Figure 2. A main effect of order was also revealed,  $F(1, 340) = 5.02$ ,  $p = .03$ ,  $\eta_p^2 = .02$ , such that coders rated the specific autobiographical memories reported by participants who first answered specific autobiographical memory questions as being more indicative of outgoingness ( $M = 61.40$ ,  $SD = 12.55$ ) compared to the specific autobiographical memories reported by participants who first answered general self-knowledge questions ( $M = 58.28$ ,  $SD = 13.07$ ). No significant interaction of condition and order was discovered,  $F(2, 161) = .05$ ,  $p = .95$ ,  $\eta^2 = .00$ , see Table 7.

The coders' ratings of participants' specific autobiographical memories from the first questionnaire for the two personality traits designed to measure responsibility (responsible and conscientious) were averaged together to create a Coders' Specific Responsibility Index for each participant. The Coders' Specific Responsibility Index was submitted to 2 (Order: Specific first or General first) x 3 (Condition: Outgoing, Responsible, or Control) analysis of variance. As depicted in Table 8 and as predicted a main effect of condition,  $F(2, 337) = 9.43$ ,  $p < .001$ ,  $\eta_p^2 = .05$ , was revealed. Tukey post hoc analysis revealed that this main effect was due to coders rating the specific memories reported by responsible condition ( $M = 69.60$ ,  $SD = 8.75$ ) as significantly ( $p = .001$ ) more indicative of responsibility compared to the specific autobiographical memories reported by the outgoing condition ( $M = 65.15$ ,  $SD = 9.50$ ), but not significantly ( $p = .99$ ) more indicative of responsibility compared to the control condition ( $M = 69.60$ ,  $SD = 8.59$ ) see Figure 3. The coders also rated the specific memories reported by the outgoing condition as significantly ( $p = .001$ ) less indicative of responsibility compared to the specific autobiographical memories reported by the control condition. No significant main effect of order

was present,  $F(1, 337) = .35, p = .55, \eta_p^2 = .001$ . No significant interaction of condition and order was discovered,  $F(2, 337) = .12, p = .85, \eta_p^2 = .001$ , see Table 9.

**Hypothesis 1b.** To test Hypothesis 1b, participants' self-ratings of their personality in general on the first questionnaire were examined. Participants ratings of their personality in general on the personality items designed to measure outgoingness (outgoing and social) were significantly correlated ( $r = .74, p < .001$ ). These two items were averaged together to create a General Self-knowledge Sociability Index for the general self-knowledge questions from the first questionnaire. The General Self-knowledge Sociability Index was submitted to 2 (Order: Specific first or General first) x 3 (Condition: Outgoing, Responsible, or Control) analysis of variance. No main effect of condition,  $F(2, 353) = .56, p = .57, \eta_p^2 = .003$ , was revealed. Tukey post hoc analysis revealed no differences between conditions, such that participants in the outgoing condition ( $M = 72.76, SD = 20.33$ ), the responsible condition ( $M = 71.60, SD = 19.63$ ), and the control condition ( $M = 69.81, SD = 22.19$ ) rated their personality as equally outgoing in general (all  $ps > .27$ ). A main effect of order was revealed,  $F(1, 353) = 5.24, p = .02, \eta_p^2 = .02$ , such that participants who first reported a specific autobiographical memory rated themselves as more outgoing in general ( $M = 74.00, SD = 20.00$ ) compared to participants who first reported general self-knowledge ( $M = 69.00, SD = 21.13$ ), see Table 10. No significant interaction of condition and order was discovered,  $F(2, 353) = 1.39, p = .25, \eta_p^2 = .01$ .

Participants ratings of their personality in general on the personality items designed to measure responsibility (responsible and conscientious) were significantly correlated ( $r = .16, p = .003$ ). These two items were averaged together to create a General Self-knowledge Responsibility Index for the general self-knowledge questions from the first questionnaire. The General Self-knowledge Responsibility Index was submitted to 2 (Order: Specific first or

General first) x 3 (Condition: Outgoing, Responsible, or Control) analysis of variance. No main effect of condition,  $F(2, 353) = .89, p = .41, \eta_p^2 = .005$ , was revealed. Tukey post hoc analysis revealed no differences between condition such that participants in the outgoing condition ( $M = 69.84, SD = 15.85$ ), the responsible condition ( $M = 71.96, SD = 13.67$ ), and the control condition ( $M = 71.64, SD = 12.49$ ) rating their personality as equally responsible in general (all  $ps > .47$ ). No main effect of order was present,  $F(1, 353) = 1.86, p = .17, \eta_p^2 = .005$ . A significant interaction of condition and order was discovered,  $F(2, 353) = 3.45, p = .03, \eta_p^2 = .02$ .

Follow-up simple effects test were conducted to investigate this interaction of condition and order on the General Self-knowledge Responsibility Index. When only examining participants, who were first asked general self-knowledge questions, no significant differences among conditions were revealed (all  $ps > .50$ ). When only examining participants, who were first asked specific autobiographical memory questions, simple effects tests reveal a significant difference, such that participants in the control condition ( $M = 72.89, SD = 11.93$ ) rated their personality in general as significantly ( $p = .03$ ) more responsible than the outgoing condition ( $M = 66.26, SD = 17.27$ ), but not significantly ( $p = .80$ ) more responsible than the responsible condition ( $M = 71.20, SD = 12.31$ ). These simple effect tests revealed no significant difference between the responsible condition and the outgoing condition ( $p = .14$ ), see Table 12.

**Participants Awareness.** Five questions aimed at pinpointing self-presentation intent were used for both general self-knowledge questions and specific autobiographical memory questions. Participant's responses to these intent questions were compared to determine any differences in self-presentation motives among conditions. It was predicted that on both the general self-knowledge intent questions and the specific autobiographical memory intent

questions, participants in the control condition would exhibit less intent than those in the two experimental conditions, however it was further predicted that all three conditions would exhibit low intent scores.

First the intent to self-present on the specific autobiographical memory questions was examined. It was found that responses to the 5 specific autobiographical intent items were highly reliable (5 items;  $\alpha = .68$ ), therefore these responses were averaged together to create a specific intent index. This specific intent index was submitted to a one-way analysis of variance to compare intent between conditions. No significant differences among conditions was discovered,  $F(2, 356) = .95$ ,  $p = .39$ ,  $\eta_p^2 = .01$ . However, as predicted all three conditions exhibited a low mean score of intent. Together the three conditions had a mean score of 2.27 of intent on a 10-point scale, a one-sample T-test was used to determine that the mean score was significantly below the mid-point (5) of the scale ( $p < .001$ ) indicating that on average participants primarily denied any self-presentation intent on the specific autobiographical memory questions.

Next the intent to self-present on the general self-knowledge questions was examined. It was found that responses to the 5 general self-knowledge intent items were highly reliable (5 items;  $\alpha = .70$ ), therefore these responses were averaged together to create a general intent index. This general intent index was submitted to a one-way analysis of variance to compare intent between conditions. As predicted, there was a significant difference between conditions,  $F(2, 355) = 6.37$ ,  $p = .002$ ,  $\eta_p^2 = .04$ . Post hoc Tukey analysis were conducted to further investigate this finding. As predicted, the control condition ( $M = 1.95$   $SD = 1.06$ ) rated their intent as significantly ( $p = .01$ ;  $p = .004$ ) lower than the outgoing condition ( $M = 2.40$   $SD = 1.39$ ) and the responsible condition ( $M = 2.45$   $SD = 1.21$ ). Again, as predicted, all three conditions had a

low mean score. Together the three conditions had a mean score of 2.27 of intent on a 10-point scale, a one-sample T-test was used to determine that the mean score was significantly below the mid-point (5) of the scale ( $p < .001$ ) indicating that on average participants primarily denied any self-presentation intent on the general self-knowledge questions.

**Timing.** The amount of time it took participants to complete the first questionnaire was recorded. This information was used to determine any differences in the amount of time it took participants to complete the questionnaire based on condition or order of autobiographical memory questions. It was predicted that the two experimental conditions (outgoing and responsible) would take longer on questionnaire 1. It was also predicted that there would be no difference among order. Participants who first answered general self-knowledge questions were predicted to take an equivalent amount of time as participants who first answered specific autobiographical memory questions.

The times were submitted to a 2 (Order: Specific first or General first) x 3 (Condition: Outgoing, Responsible, or Control) analysis of variance. As predicted, there was a significant difference between conditions,  $F(2, 353) = 4.69, p = .01, \eta_p^2 = .03$ . Post hoc Tukey analysis were conducted to further investigate this finding. As predicted, the control condition ( $M = 9.59, SD = 3.02$ ) took significantly ( $p = .03; p = .03$ ) less time than the outgoing condition ( $M = 11.02, SD = 3.05$ ) and the responsible condition ( $M = 11.03, SD = 3.22$ ) to complete questionnaire 1. The outgoing condition did not take any longer than the responsible condition ( $p = 1.00$ ) to complete questionnaire 1. No significant effect of order was revealed,  $F(1, 353) = 1.33, p = .25, \eta_p^2 = .004$ , with participants who were first presented with general self-knowledge questions ( $M = 10.52, SD = 3.21$ ) taking the same amount of time as participants who were first presented with specific self-knowledge questions ( $M = 10.31, SD = 3.01$ ).

### **Research Question 1 Discussion**

Research Question 1 was tested to determine if participants would use the proposed impression management strategy of memory enhancement by altering the way their autobiographical memories were told to create a specific impression. Hypothesis 1a predicted that participants would use memory enhancement to distort their specific autobiographical memory to emphasize the personality trait (outgoing or responsible) that would increase the likelihood of being assigned the “fun” task of rating humorous videos.

When participants were told that the “fun” task would be assigned to participants who demonstrated an outgoing personality, participants reported specific autobiographical memories that conveyed their personality as being more indicative of outgoingness. Objective coders and the participants themselves, rated the participants in the outgoing condition as conveying a more outgoing personality, based only on the specific autobiographical memories reported. These results indicate that participants used the proposed impression management strategy of memory enhancement, as predicted by Hypothesis 1a.

Further support for Hypothesis 1a became evident when participants were told that the “fun” task would be assigned to participants who demonstrated a responsible personality. These participants reported a specific memory that highlighted being responsible. Objective coders and the participants themselves, rated their personalities as more responsible, based only on the specific autobiographical memories reported, when the participants were told that responsible personalities would be assigned the fun task. These results indicate further support that participants used the proposed impression management strategy of memory enhancement, as predicted by Hypothesis 1a.

Hypothesis 1b predicted that participants would use the more researched impression management strategies of self-presentation to shape their general self-knowledge to emphasize the personality trait (outgoing or responsible) that would increase the likelihood of being assigned the “fun” task of rating humorous videos.

Hypothesis 1b was not supported by this research. Participants did not alter their general self-knowledge to be more in line with the personality that would be assigned the fun task. There was no difference between conditions when participants were told the “fun” task would be assigned to participants with outgoing personalities nor were there differences between conditions when participants were told the “fun” task would be assigned to participants with responsible personalities. These findings do not support Hypothesis 1b and suggest that participants did not use the more researched impression management strategies in this experiment.

Finding evidence for memory enhancement but not for the more researched impression management strategies of self-presentation may suggest that memory enhancement is used more easily and perhaps even unconsciously. It is possible that the manipulation used in this experiment was simply not strong enough for participants to outright lie, however it was strong enough for participants to employ memory enhancement. There is no “correct” way to share a previous experience, so maybe participants took part in memory enhancement rather than outright lying about their personalities. This could arguably cause participants to maintain a high self-esteem because they did not really lie while also accomplishing their goal of avoiding math problems.

Another possibility is that the manipulation did not cause participants to use impression management strategies at all, but primed participants to think about their personality in terms of

the parameters set by the instructions. Hearing the instructions which were designed to cause impression management strategies towards being outgoing (or responsible) may have simply primed participants to recall memories that were in line with being outgoing (or responsible). This seems logical; however, participants were instructed to recall two pre-determined specific autobiographical memories that were kept consistent across conditions. This should have prevented participants from sharing only events that highlighted the primed personality trait (Sanitioso, Kunda, & Fong, 1990). Also, if the results were due to priming, then the same pattern of results should have developed for general self-knowledge questions as the specific autobiographical memory questions as participants would have been equally primed to see themselves in general as more outgoing (or responsible).

A surprising result from Research Question 1 was the impact that order of which type of memory (specific autobiographical memory or general self-knowledge) question came first had on participants' responses. The order of the type of memory question did not produce consistent results across measures, however it significantly impacted results numerous times. The most consistent pattern suggests that answering specific autobiographical memories first enhanced participants' ratings of the sociability traits, no matter what condition the participant was assigned. While answering general self-knowledge first enhanced participants' rating of the responsibility traits, no matter what condition the participant was assigned. Perhaps the events used in this experiment caused participants to reflect upon experiences that tend to be social by nature, causing participants to rate themselves as higher on the sociability items but lower on the responsibility items when first thinking of the specific experiences. However, more research is needed to further investigate this finding.

Participants were asked about their intent to self-present in ways that would increase their chances of participating in the desired task. Participants were asked five questions about intent for the general self-knowledge questions and five questions about intent for the specific autobiographical memory questions. As predicted, across all conditions on both types of questions, participants reported a very small intent to self-present. These results can be interpreted in two ways. One possibility is that memory enhancement occurs outside of participant awareness. It is possible that participants unintentionally altered the way their specific autobiographical memories were described. Previous literature suggests that people are sometimes unaware that they are using impression management techniques (Bolino et al., 2008; DeAndrea, et. al., 2012)

Another possibility is that participants were simply lying about their intent to self-present. It is possible that participants were aware of distorting the events that occurred however participants wanted to avoid being viewed as a liar. Previous research also supports this possibility as being caught using impression management strategies can cause negative social outcomes (DeAndrea, et. al., 2012; Jones, 1964) and people tend to dislike liars (DePaulo, Kashy, Kirkendol, Wyer, & Epstein, 1996). Further research is needed to determine why participants claimed a low intent to self-present on both intent indexes, despite showing evidence of using the impression management strategy of memory enhancement.

The timing variable provides some evidence that memory enhancement most likely occurred. Participants in the experimental conditions, who had a desire to create a specific impression, took longer on the questionnaire than participants in the control condition, who should have had no reason to create a specific impression. This could suggest that even if participants were unaware that they were using memory enhancement techniques to self-present,

they took longer crafting their specific autobiographical memories into descriptions than participants in the control condition. However, the method used to time participants in this experiment only recorded participants' timing on the questionnaire from start to finish. Therefore, it is not certain that participants in the experimental conditions spent more time on the specific autobiographical memory questions as opposed to other questions on the questionnaire. These results are promising, however, and future research should examine this finding more closely.

Ultimately the above results suggest that participants used the proposed impression management strategy of memory enhancement. Participants shared their specific autobiographical memories of two predetermined events to create a story that was more in line with the personality trait that was momentarily desired. This suggests that Carson, just like many celebrities and politicians, may have used memory enhancement to create a specific impression on the public when he described his experience of being present for a robbery. However, Carson's story turned out to be false. Was this due to an outright lie or is it possible that using memory enhancement impacts the way events are recalled in the future? Research Question 2 relates to this question.

### **Research Question 2**

In order to test if engaging in memory enhancement has a long-term impact on the way an event is remembered, participants' responses on the first questionnaire and second questionnaire were examined to see if distortions to specific autobiographical memories persisted across time. The second questionnaire was completed online approximately two weeks after the in-lab portion of the experiment. Since participants had already completed the task, the pressure to create a specific impression to avoid calculus problems was no longer present. Additionally,

by taking the questionnaire online, participants would presumably be more comfortable and less influenced by biases. Therefore, the responses on the second questionnaire should represent a participant's true memory. Hypothesis 2 predicts that participants will report specific memories on the second questionnaire that are in line with the memory they reported two weeks prior, suggesting that participants' true memory of an event was altered by using memory enhancement.

**Hypothesis 2.** To test Hypothesis 2, the specific autobiographical memories reported on questionnaire 2 will be examined in several ways to determine if an impact of condition is still present approximately two weeks later. These analyses consisted of 2 (Order: Specific first or General first) x 3 (Condition: Outgoing, Responsible, or Control) analysis of variances on the responses on the second questionnaire, mixed between-within subjects analysis of variance on responses across questionnaire 1 and questionnaire 2, and change scores created from responses on both questionnaires.

Participants' read their own descriptions of each specific autobiographical memory that they reported on the second questionnaire and rated their personality on several personality traits based only on the descriptions that they reported. The participants' ratings on the two personality traits designed to measure outgoingness (outgoing and social) were found to be highly correlated across both specific memories (4 items;  $\alpha = .78$ ) on the second questionnaire. These four items were averaged together to create a specific sociability index 2 for the specific autobiographical memory questions from the second questionnaire. This specific sociability index 2 was submitted to 2 (Order: Specific first or General first) x 3 (Condition: Outgoing, Responsible, or Control) analysis of variance. As depicted in Table 13 and as predicted, a main effect of condition,  $F(2, 353) = 4.28, p = .02, \eta_p^2 = .02$ , was revealed. Tukey post hoc analysis revealed the predicted

differences between condition such that participants in the outgoing condition rated their specific memories from the second questionnaire ( $M = 71.49, SD = 18.22$ ) as significantly ( $p = .02$ ) more indicative of outgoingness compared to the participants in the control condition ( $M = 65.20, SD = 18.75$ ) and nearing significance ( $p = .06$ ) compared to participants in the responsible condition ( $M = 66.38, SD = 16.27$ ). The participants in the responsible condition did not rate their specific autobiographical memories as any more indicative of outgoingness ( $p = .86$ ) compared to participants in the control condition. A main effect of order was also present,  $F(1, 353) = 5.35, p = .02, \eta_p^2 = .02$ , such that participants who first answered specific autobiographical memory questions rated their memories as more indicative of outgoingness ( $M = 70.02, SD = 18.55$ ) than participants who first answered general self-knowledge questions ( $M = 65.66, SD = 17.14$ ). No significant interaction of condition and order was discovered,  $F(2, 353) = .26, p = .77, \eta_p^2 = .002$  (see Table 14).

Participants' read their own descriptions of each specific autobiographical memory that they reported on the second questionnaire and rated their personality on several personality traits based only on the descriptions that they reported. The participants' ratings on the two personality traits designed to measure responsibility (responsible and conscientious) were found to be highly correlated across both specific memories (4 items;  $\alpha = .61$ ) on the second questionnaire. These four items were averaged together to create a Specific Responsibility Index 2 for the specific autobiographical memory questions from the second questionnaire. This Specific Responsibility Index 2 was submitted to 2 (Order: Specific first or General first) x 3 (Condition: Outgoing, Responsible, or Control) analysis of variance. As depicted in Table 15, no main effect of condition,  $F(2, 353) = 1.06, p = .35, \eta_p^2 = .01$ , was revealed. Participants in all conditions rated their specific autobiographical memories as equally indicative of responsibility (all  $ps > .33$ ). A

main effect of order was revealed,  $F(1, 353) = 8.29, p = .02, \eta_p^2 = .02$ , such that participants who first answered general self-knowledge questions rated their specific autobiographical memories as more indicative of responsibility ( $M = 59.51, SD = 15.16$ ) compared to participants who first answered specific autobiographical memory questions ( $M = 63.97, SD = 13.64$ ). No significant interaction of condition and order was discovered,  $F(2, 353) = 1.98, p = .14, \eta_p^2 = .01$ , see Table 16.

As described above, coders rated the specific autobiographical memories from the first and second questionnaire. The coders' ratings of the specific autobiographical memories reported on the second questionnaire were used to investigate Hypothesis 2. Two independent coders' ratings on the two personality traits designed to measure outgoingness (outgoing and social responsible) after reading the specific autobiographical memories of the first day of college were found to be highly reliable on the second questionnaire (4 items;  $\alpha = .81$ ). Three independent coders' ratings on the two personality traits designed to measure outgoingness (outgoing and social) after reading the specific autobiographical memories of New Year's Eve were found to be highly reliable on the second questionnaire (6 items;  $\alpha = .80$ ). The five coders' ratings on the two personality traits designed to measure outgoingness (outgoing and social) across both events on the second questionnaire were highly reliable (10 items;  $\alpha = .81$ ). Therefore, the coders' ratings on the two personality traits designed to measure outgoingness (outgoing and social) across the two events were averaged together to create a Coders' Sociability Index 2 for questionnaire 2.

Two independent coders' ratings on the two personality traits designed to measure responsibility (responsible and conscientious) after reading the specific autobiographical memories of the first day of college were found to be highly reliable on the second questionnaire (4 items;  $\alpha = .51$ ). Two independent coders' ratings on the two personality traits designed to

measure responsibility (responsible and conscientious) after reading the specific autobiographical memories of New Year's Eve were found to be highly reliable on the second questionnaire (4 items;  $\alpha = .73$ ). The four coders' ratings on the two personality traits designed to measure responsibility (responsible and conscientious) across both events on the second questionnaire were highly reliable (8 items;  $\alpha = .76$ ). Therefore, the coders' ratings to both responsibility items across the two events were averaged together to create a Coders' Responsibility Index 2 for questionnaire 2.

These ratings were used to determine objective differences among conditions for specific autobiographical memory ratings at Time 2. In line with Hypothesis 2, it was hypothesized that the same pattern would occur as it did for Questionnaire 1 demonstrating the impact of memory enhancement across time. Specifically, it was hypothesized that coders would rate participants' specific memories as being significantly more indicative of outgoingness when reported by the outgoing condition compared to those reported by the responsible condition, with those reported by the control condition falling in the middle. It was also predicted that coders would rate participants' specific autobiographical memories as being significantly more indicative of responsibility when reported by the responsible condition compared to those reported by the outgoing condition, with those reported by the control condition falling in the middle.

The Coders' Sociability Index 2 was submitted to a 2 (Order: Specific first or General first) x 3 (Condition: Outgoing, Responsible, or Control) analysis of variance. As depicted in Table 17 and as predicted a main effect of condition,  $F(2, 340) = 7.26, p = .001, \eta_p^2 = .04$ , was revealed. As predicted, Tukey post hoc analysis revealed that this main effect was due to coders' rating the specific memories reported by the outgoing condition ( $M = 57.86, SD = 14.53$ ) as significantly ( $p = .004$ ) more indicative of outgoingness than the specific memories reported by the control

condition ( $M = 52.06$ ,  $SD = 13.86$ ) and as significantly ( $p = .004$ ) more indicative of outgoingness than the specific memories reported by the responsible condition ( $M = 51.99$ ,  $SD = 12.64$ ). The coders did not rate the specific memories reported by the responsible condition as significantly more or less indicative of outgoingness compared to the specific memories reported by the control condition ( $p = .99$ ). A main effect of order was also present,  $F(1, 340) = 3.75$ ,  $p = .05$ ,  $\eta_p^2 = .01$ , such that coders rated the specific autobiographical memories reported by participants who first answered specific autobiographical memory questions as more indicative of outgoingness ( $M = 55.55$ ,  $SD = 13.98$ ) compared to the specific autobiographical memories reported by participants who first answered general self-knowledge questions ( $M = 52.69$ ,  $SD = 13.89$ ). No significant interaction of condition and order was discovered,  $F(2, 340) = .34$ ,  $p = .71$ ,  $\eta_p^2 = .002$ , see Table 18.

The Coders' Responsibility Index 2 was submitted to 2 (Order: Specific first or General first) x 3 (Condition: Outgoing, Responsible, or Control) analysis of variance. No significant main effect of condition was revealed,  $F(2, 337) = 1.03$ ,  $p = .36$ ,  $\eta_p^2 = .006$ . Coders' rated all specific autobiographical memories as equally indicative of responsibility, no matter which condition reported the specific autobiographical memory (all  $ps > .33$ ). No significant main effect of order was present,  $F(1, 337) = .01$ ,  $p = .97$ ,  $\eta_p^2 < .001$ . Coders' rated all specific autobiographical memories as equally indicative of responsibility, no matter which type of question participants answered first. No significant interaction of condition and order was discovered,  $F(2, 337) = .59$ ,  $p = .55$ ,  $\eta_p^2 = .004$ , see Table 19.

To further test Hypothesis 2, a mixed between-within subjects analysis of variance was conducted to assess the impact of condition (Outgoing, Responsible, Control) on participants' ratings of their own specific autobiographical memories on the Specific Sociability index

questions, across two time periods (Questionnaire 1, Questionnaire 2). There was no significant interaction between participants' ratings on the sociability index and time, Wilks' Lambda = .99,  $F(2, 355) = .16$ ,  $p = .85$ ,  $\eta_p^2 = .001$ . There was a significant main effect for time, Wilks' Lambda = .96,  $F(1, 355) = 16.01$ ,  $p < .001$ ,  $\eta_p^2 = .04$ , with all participants, no matter which condition, rating their own specific autobiographical memories as less indicative of outgoingness on the first questionnaire ( $M = 70.08$ ,  $SD = 18.57$ ) compared to the second questionnaire ( $M = 67.74$ ,  $SD = 17.96$ ). As predicted, there was also a significant main effect of condition,  $F(2, 355) = 4.89$ ,  $p = .01$ ,  $\eta_p^2 = .03$ . Post-hoc Tukey analysis revealed that this main effect was due to the predicted pattern, such that participants in the outgoing condition rated their own specific autobiographical memories as significantly ( $p = .04$ ) more indicative of outgoingness compared to participants in the responsible condition and significantly ( $p = .01$ ) more indicative of outgoingness compared to participants in the control condition. Participants in the control condition did not rate their specific autobiographical memories as any more or less significantly ( $p = .90$ ) indicative of outgoingness compared to participants in the responsible condition. These results are presented visually in Figure 4.

A mixed between-within subjects analysis of variance was conducted to assess the impact of condition (Outgoing, Responsible, Control) on participants' scores on the Specific Responsibility Indexes, across two time periods (Questionnaire 1, Questionnaire 2). There was a significant interaction between ratings on the Specific Responsibility Indexes and time, Wilks' Lambda = .98,  $F(2, 356) = 4.02$ ,  $p = .02$ ,  $\eta_p^2 = .02$ . This interaction was primarily due to participants in the outgoing condition rating their specific autobiographical memories as less indicative of responsibility on the first questionnaire ( $M = 57.40$ ,  $SD = 15.96$ ) compared to the second questionnaire ( $M = 60.47$ ,  $SD = 15.58$ ), while participants in the responsible condition

and control condition rated their specific autobiographical memories as slightly more indicative of responsibility on the first questionnaire 1 ( $M = 64.64, SD = 13.83; M = 62.02, SD = 12.15$ ) compared to the second questionnaire ( $M = 63.08, SD = 13.14; M = 61.96, SD = 14.74$ ). There was not a significant main effect for time, Wilks' Lambda = .99,  $F(1, 356) = .50, p = .48, \eta_p^2 = .001$ . As predicted, there was a significant main effect of condition,  $F(2, 356) = 4.60, p = .01, \eta_p^2 = .03$ . However, post-hoc Tukey analysis revealed that this main effect was due to participants in the responsible condition rating their autobiographical memories as significantly ( $p = .01$ ) more indicative of responsibility compared to participants in the outgoing condition. However, the participants in the control condition did not rate their autobiographical memories as any more or less indicative of responsibility ( $p = .50; p = .15$ ) compared to participants in the responsible condition and participants in the outgoing condition. These results are presented visually in Figure 5.

A mixed between-within subjects analysis of variance was conducted to assess the impact of condition (Outgoing, Responsible, Control) on participants' scores on the Coders' Specific Sociability Indexes, across two time periods (Questionnaire 1, Questionnaire 2). There was no significant interaction between coders' ratings on the Coders' Specific Sociability index and time, Wilks' Lambda = .99,  $F(2, 339) = .80, p = .45, \eta_p^2 = .005$ . There was a significant main effect for time, Wilks' Lambda = .69,  $F(1, 339) = 153.18, p < .001, \eta_p^2 = .31$ , with coders rating all specific autobiographical memories, no matter which condition reported the memories, as more indicative of outgoingness on the first questionnaire ( $M = 59.86, SD = 12.86$ ) compared to the second questionnaire ( $M = 54.01, SD = 14.04$ ). As predicted, there was a significant main effect of condition,  $F(2, 339) = 7.06, p = .001, \eta_p^2 = .04$ . Post-hoc Tukey analysis revealed that this main effect was due to the predicted pattern, coders rated the specific autobiographical

memories reported by the outgoing condition as significantly ( $p = .01$ ) more indicative of outgoingness compared to specific autobiographical memories reported by the responsible condition and significantly ( $p = .01$ ) more indicative of outgoingness compared to specific autobiographical memories reported by the control condition. Coders did not rate the specific autobiographical memories reported by the control condition as any more or less significantly ( $p = .99$ ) indicative of outgoingness compared to the specific autobiographical memories reported by the responsible condition. These results are presented visually in Figure 6.

A mixed between-within subjects analysis of variance was conducted to assess the impact of condition (Outgoing, Responsible, Control) on participants' scores on the Coders' Specific Responsibility Indexes, across two time periods (Questionnaire 1, Questionnaire 2). There was a significant interaction between coders' ratings on the Coders' Specific Responsibility Indexes and time, Wilks' Lambda = .98,  $F(2, 333) = 4.05$ ,  $p = .02$ ,  $\eta_p^2 = .02$ . This interaction was primarily due to coders rating the specific autobiographical memories that the responsible condition and the control condition reported as being less indicative of responsibility from questionnaire 1 ( $M = 69.61$ ,  $SD = 8.83$ ;  $M = 69.56$ ,  $SD = 8.61$ ) to questionnaire 2 ( $M = 66.59$ ,  $SD = 8.66$ ;  $M = 67.06$ ,  $SD = 9.59$ ), while coders rated the specific autobiographical memories reported by the outgoing condition as slightly more indicative of responsibility from questionnaire 1 ( $M = 65.18$ ,  $SD = 9.57$ ) to questionnaire 2 ( $M = 65.31$ ,  $SD = 9.71$ ). There was a significant main effect for time, Wilks' Lambda = .96,  $F(1, 333) = 13.79$ ,  $p < .001$ ,  $\eta_p^2 = .04$ , as the coders' rating of specific autobiographical memories as being indicative of responsibility decreased from questionnaire 1 ( $M = 68.10$ ,  $SD = 9.23$ ) to questionnaire 2 ( $M = 66.32$ ,  $SD = 9.34$ ) across all conditions. As predicted, there was also a significant main effect of condition,  $F(2, 333) = 5.10$ ,  $p = .01$ ,  $\eta_p^2 = .03$ . Post-hoc Tukey analysis revealed that this main effect was

due to coders rating the specific autobiographical memories reported by the responsible condition and by the control condition as significantly ( $p = .02$ ;  $p = .01$ ) more indicative of responsibility compared to the specific autobiographical memories reported by the outgoing condition. However, coders did not rate the specific autobiographical memories reported by the responsible condition as significantly (.98) more or less indicative of responsibility compared to the specific autobiographical memories reported by the control condition. These results are presented visually in Figure 7.

Each participant was assigned a change score for their own ratings of the specific autobiographical memories, and for the coders' ratings of the specific autobiographical memories. To calculate a change score, participants score on the specific sociability index 2 (separately the Specific Responsibility Index 2) from the 2<sup>nd</sup> questionnaire were subtracted from the scores on the 1<sup>st</sup> questionnaire. These change scores were calculated for both personality traits of interest (responsibility and sociability). It is predicted that change scores will not be significantly different across conditions. However, this test will be conducted because finding a significant result will lead to non-supporting evidence of Hypothesis 2, as a significant result for experimental conditions would provide evidence that memory enhancement does not impact the way memories are later recalled. These change scores analysis were conducted because the results provided a more rigorous test of potential changes across Time 1 and Time 2 by considering both participants' ratings and coders' ratings in the analysis.

A one-way between groups multivariate analysis of variance was performed to investigate if condition impacted change scores for the sociability index. Two dependent variables were used: sociability change score of coders' ratings of the specific autobiographical memories and sociability change score of participants' ratings of the specific autobiographical

memories. No significant differences among conditions on the combined dependent variables was revealed, Wilks' Lambda = .99,  $F(4, 676) = .471$ ,  $p = .76$ ,  $\eta_p^2 = .003$ . This suggests that when combining the coders' ratings and the participants' ratings, no condition reported specific autobiographical memories with ratings that changed from the first questionnaire to the second questionnaire significantly more than any other condition. Suggesting that any changes in ratings of outgoingness from Time 1 to Time 2 were systematic across condition. Importantly, the outgoing condition continued to report a memory that was no less indicative of outgoingness at Time 2 than at Time 1, as the participants' change score in the outgoing condition was not significantly different than participants in the other two conditions.

A one-way between groups multivariate analysis of variance was performed to investigate if condition impacted change scores for the responsibility index. Two dependent variables were used: responsibility change score of coders' ratings of specific autobiographical memories and responsibility change score of participants' ratings of specific autobiographical memories. A significant difference between conditions on the combined dependent variables was revealed, Wilks' Lambda = .95,  $F(4, 664) = 3.99$ ,  $p = .01$ ,  $\eta_p^2 = .02$ .

Due to this significant result, the dependent variables were considered separately with a Bonferroni adjustment so that the new alpha level is .025, this was calculated by taking the current alpha level of .05 divided by the number of dependent variables (Pallant, 2010). The responsibility change score of the coders' ratings of specific autobiographical memories was found to be significant,  $F(2, 333) = 4.05$ ,  $p = .02$ ,  $\eta_p^2 = .02$ . Mean scores indicate that coders' rated the specific autobiographical memories reported by participants in the outgoing condition ( $M = 0.13$   $SD = 0.83$ ) as changing in being indicative of responsibility more than specific autobiographical memories reported by participants in the control ( $M = -2.50$   $SD = .83$ ) and as

changing more than the specific autobiographical memories reported by participants in the responsible condition ( $M = -3.01$   $SD = .85$ ). The responsibility change score of participants' ratings of specific autobiographical memories was also found to be significant,  $F(2, 333) = 3.92$ ,  $p = .02$ ,  $\eta_p^2 = .02$ . Again mean scores indicate that participants in the outgoing condition ( $M = 3.35$   $SD = 1.23$ ) reported specific autobiographical memories that changed more in being indicative of responsibility compared to the specific autobiographical memories reported by participants in the control condition ( $M = -0.13$   $SD = 1.23$ ) and as changing more than the specific autobiographical memories reported by participants in the responsible condition ( $M = -1.38$   $SD = 1.23$ ). These results suggest that the effects of responsibility on the second questionnaire could be due to a change in the way the outgoing condition reported their specific autobiographical memories in terms of being more indicative of responsibility across time.

**Timing.** The amount of time it took participants to complete the second questionnaire was recorded. This information was used to determine any differences in the amount of time it took participants to complete the questionnaire based on condition or order of autobiographical memory questions. It was predicted that at Time 2, the differences between conditions would no longer be present. It was again predicted that there would be no difference among order. Participants who first answered general self-knowledge questions were predicted to take an equivalent amount of time as participants who first answered specific autobiographical memory questions.

The times it took participants to complete questionnaire 2 were submitted to a 2 (Order: Specific first or General first) x 3 (Condition: Outgoing, Responsible, or Control) analysis of variance. As predicted, there was not a significant difference between conditions,  $F(2, 353) = .67$ ,  $p = .51$ ,  $\eta_p^2 = .004$ . There was also no significant effect of order,  $F(1, 353) = 3.57$ ,  $p = .06$ ,

$\eta_p^2 = .01$ . No significant interaction was present,  $F(1, 353) = 1.96, p = .14, \eta_p^2 = .01$ . These results suggest it took all participants an equivalent amount of time to complete the second questionnaire.

### **Research Question 2 Discussion**

Research Question 1 demonstrated that participants used the proposed impression management technique of memory enhancement. Research Question 2 was tested to determine if using memory enhancement had a lasting impact on the way an event is remembered over time. Hypothesis 2 predicts that utilizing memory enhancement would have a lasting impact on the way a specific event is recalled two weeks later.

Two weeks after completing the initial experiment, participants received a link to questionnaire 2. It is essential to note that the task portion of the experiment had already occurred, therefore, answers on the second questionnaire should not have been influenced by any desire for specific tasks. Additionally, participants completed questionnaire 2 online so the pressure to be consistent in the lab room were minimal. Answers on questionnaire 2 can therefore be attributed to honest answers. The specific autobiographical memories reported at Time 2 should represent the participants' true recollection of the events.

Results indicate mixed support for Hypothesis 2 depending on which personality trait is examined. Participants again rereported their memory for the two specific events (their first day of college and their most recent New Year's Eve) on questionnaire 2. Participants and objective coders read these specific memories and were asked to rate the participant's personality based only on the newly reported specific memory description on a number of personality traits. Both the participants and the objective coders agreed that participants who had used memory enhancement to appear more outgoing (those in the outgoing condition) at Time 1, reported

specific autobiographical memories at Time 2 that were rated as more indicative of outgoingness compared to the other conditions. This finding provides support for Hypothesis 2. When the personality characteristic of being outgoing was examined, results clearly demonstrate that memory enhancement impacted future recall of the specific events.

However, when the personality characteristic of responsibility was examined, results were mixed and primarily did not support Hypothesis 2. Both the participant and objective coders agreed that participants who had used memory enhancement to appear more responsible (those in the responsible condition) at Time 1, did not report specific autobiographical memories at Time 2 that were more indicative of responsibility compared to the control condition. The differences observed on the responsibility measures at time two, were instead due to the outgoing condition reporting specific autobiographical memories that were less indicative of responsibility compared to the other two conditions. These results were found through multiple analyses and this finding does not provide support for Hypothesis 2.

There are several possible explanations for the differences between the social and responsible personality findings. One explanation is that the two events that the participants were asked to describe, their first day of college and their most recent New Year's Eve, were simply more social occasions than responsible occasions. It is possible that it was easier for participants to transform those events into stories that highlighted and exaggerated the social aspects of their personality rather than the responsible side of their personality.

Another possibility is that the population included in the current experiment was pre-biased to being responsible. All participants in the current experiment were University of Arkansas students who signed up for a longitudinal experiment and successfully participated in both portions of the experiment and correctly read the instructions. Perhaps participants in all

conditions were prebiased to ranking high on the responsibility scale, creating fewer potential differences between conditions and less need for participants in the responsible condition to use memory enhancement. If participants in the responsible condition already considered themselves to be responsible and their specific autobiographical memories were already indicative of being responsible, then they would not have to use memory enhancement to alter their specific memories to create the desired impression as much as participants in the outgoing condition. If this is the case, then the future recall of the events would not have been as impacted by using memory enhancement which could explain the results at Time 2.

The third possibility is that memory enhancement does not impact the future recall of an event. Perhaps random assignment failed and participants who just happened to be more outgoing were assigned to the outgoing condition. This possibility cannot be tested however, because no premeasures of personality were recorded. Every measure to ensure random assignment occurred was taken in this experiment. The conditions were listed in a randomized order using an online randomizer and each participant was assigned to the next condition on the list when they arrived at the laboratory. Therefore, given the large sample size and the procedures used to increase random assignment, it seems unlikely that results were due to a failure of random assignment. However, more research must be conducted to conclusively determine which of the three proposed possibilities is the correct explanation for the differences observed among the trait measures of outgoingness and responsibility.

Similar, to results from Research Question 1, results from Research Question 2 revealed an odd and unpredicted main effect of order on a few analyses. Analyses on questionnaire 2 again reveal that the specific autobiographical memories reported at Time 2 were rated as more indicative of outgoingness if participants answered the specific autobiographical memory

questions first, regardless of the condition to which the participant was assigned. Analyses on questionnaire 2 again reveal that the specific autobiographical memories reported at Time 2 were rated as more indicative of responsibility if participants answered the general self-knowledge questions first, regardless of the condition to which the participant was assigned. These were the same patterns that emerged from the first questionnaire.

One intriguing explanation is that these results illustrate a problem with the event that participants were asked to describe. Perhaps the events inherently promoted a memory of an occasion in which the participant was naturally more outgoing and social instead of responsible. Thinking of these memories first primed participants to see their personality in general as more outgoing/social and less responsible, explaining the finding that all participants rated themselves as more outgoing when first thinking about the events. Following this argument, perhaps participants rated themselves as more responsible if they first thought about their personality in general because the events did not elicit a recollection of a responsible time. If this is the case, it may also explain why there was not a main effect of condition on the responsibility trait.

The timing variable provides some evidence that memory enhancement had truly impacted the participants' specific autobiographical memories of the reported events. On the first questionnaire, participants in the two experimental conditions took longer to complete the questionnaire than participants in the control condition, suggesting memory enhancement may have occurred. However, these differences disappear on the second questionnaire, suggesting that participants were no longer spending more time crafting their specific autobiographical memory to be more in line with the impression the participant wanted to create. Yet, participants in the outgoing condition still reported specific memories that were consistently rated as more indicative of outgoingness. This could suggest that participants in the outgoing condition were

reporting their true autobiographical memory at Time 2 and that it was truly remembered as it was reported two weeks earlier. This would explain the disappearance of time difference among conditions. However, the timing used in this experiment only recorded participant's timing on the questionnaire from start to finish. Therefore, we can only conclude that all three conditions spent an equivalent amount of time completing all of questionnaire 2. It is not certain that all three conditions spent an equivalent amount of time reporting their specific memories, only that all three conditions spent an equivalent amount of time on the questionnaire from start to finish.

Ultimately the above results suggest that using memory enhancement may have an impact on the way specific autobiographical memories are later recalled when it comes to the personality trait of being outgoing. On questionnaire 1, participants shared their specific autobiographical memories of two predetermined events to create a story that was more in line with the personality trait that was momentarily desired. On questionnaire 2, participants recalled the same specific autobiographical memories in the absence of any pressure to use impression management strategies. However, participants still shared their specific autobiographical memories in a way that suggested they were outgoing if the participants had been motivated to convey outgoingness 2 weeks earlier.

This suggests that Carson, just like many celebrities and politicians who have told a false story about their life, may not have outright lied to the public but may have relied on an incorrect recollection of the event that resulted from using memory enhancement in the past. Since people rely on their previous memories to help determine a sense of self (Conway & Pleydell-Pearce, 2000), it is possible that having incorrect memories due to memory enhancement could slowly change a person's self-concept over time. After enough recollections of the autobiographical memory that has been changed via memory enhancement, perhaps a person's self-concept will

also change as they truly recall past experiences in line with the impression they had wanted to create. Could using memory enhancement cause a shift in how people see themselves? Research Question 3 begins to address this question by examining if using memory enhancement only one time could impact a person's sense of self 2 weeks later.

### **Research Question 3**

To test if employing the impression management strategy of memory enhancement impacts the self-concept via autobiographical memory distortion, participants' responses on both the specific autobiographical memory questions and the general self-knowledge questions from Questionnaire 1 and Questionnaire 2 were examined. Hypothesis 3 is that participants who demonstrated altered memories for the specific events reported at Time 2 will be more likely to demonstrate a self-concept that is in line with the altered memory as measured by the general self-knowledge questions at Time 2. Specifically, Hypothesis 3 predicts that the specific memory given on the first questionnaire will be more predictive of the participants' general self-knowledge on the second questionnaire than the participants general self-knowledge on the first questionnaire.

Research Question 3 was examined using two analysis (cross lagged correlation and standard multiple regression) that will either provide evidence in support of, or against, Hypothesis 3. Additionally, only the Specific Sociability Indexes will be used to answer Research Question 3. The outgoing trait was consistently impacted by memory enhancement at Time 2. However, the responsibility trait did not demonstrate sufficient evidence of being impacted by memory enhancement at Time 2. It would be impossible for the trait of being responsible to impact the self-concept via memory distortion when evidence does not support that memory distortion even occurred for the responsibility traits. Since memory distortion did

not conclusively occur for the responsibility traits, only the sociability trait of being outgoing will be examined to determine if the self-concept is impacted by memory enhancement via specific memory distortion. Since participants were the only available judge of their personality in general, only the participants' ratings from questionnaire 1 and questionnaire 2 will be used in the following analyses.

**Hypothesis 3.** First participants' Specific Sociability Index, Specific Sociability Index 2, General Self-knowledge Sociability Index, and General Self-knowledge Sociability Index 2 were analyzed via cross-lagged correlations. Figure 8 demonstrates the following visually. The first path represents a significant synchronous correlation ( $p < .001$ ;  $r = .68$ ) between the Specific Sociability Index (proposed causal variable) and the General Self-knowledge Sociability Index (proposed effect variable) measured at the same time. The path between the Specific Sociability Index and the Specific Sociability Index 2 represents a significant stability correlation ( $p < .001$ ;  $r = .82$ ) as these are the same measures, measured at different times. The path between the General Self-knowledge Sociability Index and the General Self-knowledge Sociability Index 2 represents a significant stability correlation ( $p < .001$ ;  $r = .55$ ) as these are the same measures, measured at different times. The cross path between the Specific Sociability Index and the General Self-knowledge Sociability Index 2 represents a significant cross-lagged correlation ( $p < .001$ ;  $r = .63$ ) as these are different measures, measured at different times. The cross path between the General Self-knowledge Sociability Index and the Specific Sociability Index 2 represents a significant cross-lagged correlation ( $p < .001$ ;  $r = .62$ ) as these are different measures, measured at different times. Finally, the path between the Specific Sociability Index 2 and the General Self-knowledge Sociability Index 2 demonstrated a significant synchronous correlation ( $p < .001$ ;  $r = .81$ ).

Traditionally, it is assumed that the causal path could be determined if the cross-lagged correlations between the cause variable at Time 1 and the effect variable at Time 2 was larger than the correlation of the effect variable at Time 1 and the cause variable at Time 2 (Campbell & Stanley, 1963). In this set of data, this would mean that a causal path between the Specific Sociability Index and the General Self-knowledge Sociability Index 2 would be supported if the cross-lagged correlation between these two variables ( $r = .63$ ) was larger than the cross-lagged correlation between the General Self-knowledge Sociability Index and the Specific Sociability Index 2 ( $r = .62$ ). Although, as predicted, the correlation was technically larger for the Specific Sociability Index and the General Self-knowledge Sociability Index 2, cross-lag correlation does not allow for tests of significance. Therefore, it is impossible to determine if the correlation is significantly larger using cross-lag correlation alone.

Additionally, all the variables included in this cross-lagged correlation were significantly correlated, meaning that the Specific Sociability Index at Time 1 and Time 2 and the General Self-knowledge Sociability Index at Time 1 and Time 2 were too highly correlated for observed statistics to be relied upon (Shadish, Cook, & Campbell, 2002). Therefore, a standard multiple regression analysis was carried out to more clearly determine if the Specific Sociability Index or the General Self-knowledge Sociability Index at Time 1 is the better predictor of the General Self-knowledge Sociability Index 2 at Time 2.

The results of the regression indicate the two predictors explain a significant amount (42%) of the variance of the General Self-knowledge Sociability Index 2, ( $R^2 = .42$ ,  $F(2, 355) = 129.4$ ,  $p < .001$ ,  $\eta_p^2 = .02$ ). The specific memory sociability index reported on the first questionnaire uniquely explains 12% of the variance in General Self-knowledge Sociability Index 2 from the second questionnaire. The General Self-knowledge Sociability Index at Time 1

only uniquely explains .03 or 3% of the variance in the General Self-knowledge Sociability Index 2 from the second questionnaire. This suggests that a one standard deviation increase (18.57 points) on the Specific Memory Sociability Index on the first questionnaire would cause a 9.7 point (.46 of one standard deviation) increase on the General Self-knowledge Sociability Index 2 reported approximately two weeks later, on questionnaire 2; see Table 20.

### **Research Question 3 Discussion**

Research Question 1 demonstrated that participants used memory enhancement to create a specific impression by distorting the way they disclose previous events. Research Question 2 demonstrated that using memory enhancement had a lasting impact on the way an event is remembered over time, at least when the social personality trait of being outgoing was exaggerated. Hypothesis 3 predicted that utilizing memory enhancement techniques would impact participants' self-concept via memory distortion.

Results indicate initial support for Hypothesis 3. The Specific Sociability Index, based on participants' description of the two specific events described on the first questionnaire, was the best predictor of the reported general self-knowledge on the second questionnaire. The general self-knowledge questions on the first questionnaire were the same as the general self-knowledge questions on the second questionnaire. Despite asking participants the same questions, the General Self-Knowledge Index from Time 1 was not as successful as the Specific Sociability Index from Time 1 at predicting participants' responses on the general self-knowledge questions at Time 2. This finding provides initial support for Hypothesis 3. However, it could be argued that the general-self-knowledge questions used in this experiment are not the best way to measure a person's overall sense of self (Sanitioso et al., 1990) as such, these results must be interpreted with caution.

These results, in support of Research Question 3, suggest that Carson may not have been misrepresenting himself as someone who reacts to gun violence calmly when he shared his recollection of being present for a robbery at Popeyes. Perhaps, Carson used memory enhancement to alter the way he originally shared the events that occurred in the “robbery”, overtime his memory for the events was replaced by the story he told others. When Carson reflects upon this experience, he may recall the story he has shared, in which he reacted calmly to a robbery, and therefore assume that he is the kind of person that will respond calmly to gun violence. Carson, like any person who has ever used memory enhancement, may have become the person he pretended to be via autobiographical memory distortion.

### **General Discussion**

This experiment was the first step in examining the proposed relationships among impression management strategies, specific autobiographical memories, and the self (see Figure 1). Each link has been examined in this experiment. Research Question 1 addressed the first link of the model. Participants were put into a situation in which they wanted to create a specific impression to avoid completing calculus problems. Participants were then presented with an opportunity to share general self-knowledge and specific autobiographical memories of two predetermined events. Hypothesis 1a was supported as participants used the proposed impression management strategy of memory enhancement to create the desired impression (being outgoing or being responsible) by sharing their specific autobiographical memories in ways that enhanced the impression they wanted to create.

Importantly, the autobiographical memories were of two predetermined events, participants distorted their recollection of the events to create the desired impression rather than choosing autobiographical memories of events that would promote the desired impression

(Kunda, 1990; Sanitioso et al., 1990) This finding was evident in participants' ratings of their own specific autobiographical memories as well as in objective coders' ratings of the specific autobiographical memories. Therefore, the results of Research Question 1 fully support the first link of the model.

One surprising result that was discovered on the first questionnaire, was the lack of support for Hypothesis 1b. It was hypothesized that participants would demonstrate evidence of the more researched impression management strategy of self-presentation by exaggerating their general self-knowledge on the first questionnaire. However, participants in this study showed evidence of using memory enhancement but not outright self-presentation.

Self-presentation has been demonstrated in previous literature and it is generally considered a successful impression management strategy (Bolino et al., 2008; Hazer & Jacobson, 2003). There was no reason to expect self-presentation to not occur in this experiment. One possible explanation for the lack of support for Hypothesis 1b is that the manipulation used in this experiment was simply too direct. It is likely that participants were very aware of the impression they wanted to create (being outgoing or being responsible), so perhaps asking participants outright if they possess the desired personality traits caused participants to be honest instead of exaggerating the desired personality traits.

Previous literature clearly demonstrates that being caught using impression management strategies leads to negative social consequences (DeAndrea et al., 2012; Jones, 1964). Participants may not have felt comfortable exaggerating general self-knowledge as it is more set-in stone than specific autobiographical memories. Memory enhancement may work similarly to the impression management strategies of using status symbols (Harmon-Jones, Schmeichel, & Harmon-Jones, 2009) and boasting about associations with successful individuals (Cialdini &

Nicholas, 1989). These impression management strategies can be employed with little fear of being caught. There is no one right way to tell others about a previous experience, so making little changes to the way an event is told could be an easy way to create a desired impression with little fear of being caught. In this experiment, it is possible that memory enhancement occurred but self-presentation of general self-knowledge did not, because memory enhancement can occur without outright lying.

Research Question 2 investigated the second link of the model. This was examined by asking participants to share the same specific autobiographical memories that were reported on Questionnaire 1, two weeks later, on Questionnaire 2. Questionnaire 2 was completed in the absence of any pressure to create a specific impression, therefore, the answers on Questionnaire 2 were assumed to be participants' true recollection of the events. Hypothesis 2 predicted that participants would report an autobiographical memory at Time 2 that continued to be influenced by the impression that the participant hoped to create two weeks earlier. Hypothesis 2 was somewhat supported. Participants in the outgoing condition continued to report specific autobiographical memories that were rated as more indicative of outgoingness compared to the other two conditions by the participant and by objective coders at Time 2. This finding supports Hypothesis 2 and therefore the second link of the model.

However, the results for the responsibility personality trait were not as consistent. On the second questionnaire, participants in the responsible condition reported specific autobiographical memories that were only rated as being more indicative of responsibility compared to the outgoing condition but not to the control condition. Based on these findings it is more likely that participants in the outgoing condition reported specific autobiographical memories that were just rated as less indicative of responsibility rather than participants in the responsible condition

reporting specific autobiographical memories that were more indicative of responsibility. This finding does not support Hypothesis 2. There are three possible explanations for this conflicting finding.

One possible explanation for this finding is that the events that participants were asked to describe were too social in nature. If the events that were recalled are social in nature, perhaps participants found it more difficult to create a story from the events that were plausibly indicative of responsibility. Past research on creating false memories suggest that plausibility is important for autobiographical memory malleability to occur (Mazzoni, Loftus, & Kirsch, 2001). Participants in the responsible condition reported specific memories that were rated as more indicative of responsibility at Time 1, but this did not carry over to Time 2. Perhaps, the events that the responsibility condition reported at Time 1 were not plausible enough to create lasting changes to their autobiographical memories of the events. Therefore, at Time 2 when participants recalled their true memory of the events, in the absence of any pressure to self-present, participants recalled their original memory that was unimpacted by using memory enhancement at Time 1. More research is needed to explore this possibility by including events that are less social in nature, perhaps participants should have been asked about their memory of taking the SAT or their recollection of their first day at a job.

Another possible explanation is that there was a problem with the population used in this experiment. It is possible that the participants used in this experiment consisted of a subset of the population that would rank particularly high on the responsibility scale. All participants were University of Arkansas students who were responsible enough to successfully complete a longitudinal experiment. Perhaps, the participants in the responsible condition only relied on memory enhancement to slightly to exaggerate their tendency to be responsible to avoid calculus

problems on the first questionnaire. By the time the second questionnaire was administered it is possible that these slight changes were no longer significantly different than the control condition because the control condition also consisted of highly responsible people. This would explain the nearly identical results observed between the control condition and the responsible condition on nearly every measure at Time 2. This explanation cannot be fully tested however, because no pre-test personality measures were taken. Future research should consider exploring the option of having a pre-test personality measure to rule out the possibility of a unique sample or of non-random assignment of participants.

The third possible explanation for the unpredicted responsibility results on the second questionnaire is that the two personality measures that were manipulated in this design were not the ideal choice to examine memory enhancement. Results may have been more in line with the hypothesis, if the two personality traits that were used were truly opposite personality traits. It is possible that a participant could be outgoing and responsible at the same time. If opposite personality traits were used, a more direct comparison of the experimental conditions could have been observed. In the current experiment, it is difficult to interpret the differences between the two experimental conditions and the control condition.

Previous personality experiments have successfully manipulated participants on opposite traits without using a control condition. For example, the personality traits of extraversion and introversion (Sanitioso, 1990) and the personality traits of being ordinary and unique (Markus & Kuna, 1986) have been found to be more endorsed as a trait when it is presented as the favorable outcome. In these experiments, the two experimental conditions are compared. By using two ends of one personality trait, both experimental conditions endorsed one end of the spectrum more than the other. Although one would assume that a control condition would fall in the

middle, this may not necessarily be the case. Particularly, in the current experiment where students are probably pre-biased to display responsible personality traits in an experimental setting. Future research should focus on examining memory enhancement for different personality traits, perhaps focusing on personality traits that have a natural opposite.

Research Question 3 investigated the third link in the model. This was examined by looking at the impact that the specific autobiographical memories reported at Time 1 had on the general self-knowledge reported at Time 2. Hypothesis 3 predicted that participants would exhibit general self-knowledge at Time 2 that was more predicted by the specific autobiographical memory reported at Time 1 than by the general self-knowledge reported at Time 1. Results indicated that participants' sense of self as measured on the general self-knowledge scale at Time 2 was more predicted by the ratings from the specific autobiographical memory at Time 1 than by the general self-knowledge scale at Time 1. These results supported Hypothesis 3, and therefore the third link of the model.

This finding provides initial support for the third link of the model, however future research that more carefully and more thoroughly examines a person's sense of self is needed to make conclusive judgements about the third link in the model. The current experiment just used a person's general self-knowledge to determine a person's sense of self and this may not be the best measurement of a person's sense of self (Sanitioso et al., 1990). Future research should examine the third link of the model by using a more detailed measure of a participant's sense of self.

Together the results of this experiment show a general pattern of support for the proposed model. Further support for the model can be found in the timing results. On the first questionnaire, when there was pressure to use memory enhancement, participants in the two

experimental conditions took longer to complete the questionnaire compared to participants in the control condition. Results also indicate that participants in the two experimental conditions reported autobiographical memories in line with using memory enhancement. This could suggest that participants in the experimental conditions were taking longer to reconstruct their autobiographical memories into stories that promoted the currently desired personality trait (outgoingness or responsibility). Thereby demonstrating the additional time it takes to complete memory enhancement when compared to a control condition that had no need to distort their autobiographical memories.

This difference in time disappeared on the second questionnaire. In line with the predictions made by the model, it is possible that this could indicate that participants in all conditions did not take longer than one another because all conditions were reporting their true autobiographical memory. At Time 2, participants had no need to self-present, so it was assumed that their reported autobiographical memory would represent their recollection of the events with no distortion. The evidence from timing participants suggests this is the case. Participants in the experimental conditions no longer had to take more time to distort their autobiographical memories of the events. However, participants in the outgoing condition still reported autobiographical memories that were again rated as more indicative of outgoingness. This finding supports the prediction that memory enhancement can alter a person's long-term memory for an event.

Although the results from the timing variable are interesting and provide some amount of support for the model, these results must be interpreted with caution. Due to technical limitations, this experiment only recorded timing across the entire experiment. Survey Monkey recorded participants time from the moment they began the questionnaire to the moment it was

over. There is no record of which section participants spent the most time completing. It is possible that the two experimental conditions took longer on the intent questions on the first questionnaire. Perhaps, these participants struggled to fill out the intent questions because it involved either lying or admitting to lying earlier in the survey. It is also possible that participants in the experimental condition took longer on the general self-knowledge questions or even the demographic questions. Future research should focus on this timing variable as it is an important aspect of memory enhancement. If the preliminary finding that memory enhancement takes longer than simple recollection is supported in future research, then this would provide evidence for true distortion of autobiographical memories due to social pressures. This would further illustrate the close connection between human cognition and the social world in which humans thrive.

One surprising result from the current experiment was the impact of question order on participants results. An impact of order on the results was not predicted. However, a pattern emerged from Questionnaire 1 and Questionnaire 2. When participants first answered specific autobiographical memory questions, the participants reported specific autobiographical memories that were rated as more indicative of outgoingness, regardless of condition. However, when participants first answered general self-knowledge questions, participants reported specific autobiographical memories that were rated as more indicative of responsibility, regardless of condition. This pattern of results emerged on both the first and second questionnaire.

One possible explanation for this finding is that the events the participants were asked to recall were very social in nature. Perhaps recalling their first day of college and their previous New Year's Eve promoted participants to recall an autobiographical memory of an occasion in which they were all naturally more outgoing and social instead of responsible. Thinking of these

memories before thinking of their personality in general, may have caused participants to see their personality in general as more outgoing/social and less responsible. This would explain the finding that all participants rated themselves as more outgoing on the specific autobiographical memory questions when first thinking about the events. It would also explain why participants rated themselves as more responsible if they first thought about their personality in general.

Despite this surprising result, the current results primarily support the proposed model, however there are a few other interpretations of the results that must be considered. Together the results from this experiment support the hypothesis that memory enhancement was used on the first questionnaire. It was predicted that participants would use memory enhancement to create a desired impression on others to avoid a negative task (calculus problems). However, another interpretation of the results could be that participants gave biased retellings of their autobiographical memories not to create a specific impression for others, but to increase their own self-esteem. Perhaps, making one trait more desirable, even arbitrarily so, caused participants to want to see themselves as a person who possess the desired personality trait (outgoingness or responsibility).

In other experiments, it has been found that when participants are made to feel that one personality trait is desired, participants tend to recall autobiographical memories of experiences that highlight the desired trait (Markus & Kuna, 1986; Sanitioso, 1990). In these experiments, it is argued that participants are motivated to see themselves in the most favorable light as possible and therefore perform a biased search through their memories for events that are in line with the desired personality trait (Klein & Kunda, 1993). It is possible to interpret the current results in the same way. Perhaps, participants were motivated to distort their specific autobiographical memories to maintain or to create high self-esteem rather than to create an impression on others.

However, if this were the case, it would seem logical for the general self-knowledge questions to follow the same pattern. This was not the case; however future research should examine self-esteem as a possible mechanism by which memory enhancement occurs.

Another alternative explanation for the results is that priming could be the cause of the differences between conditions. It is possible that the instructions primed participants to see themselves as more outgoing or more responsible. However, if this were the case, then it would again be expected that the general self-knowledge questions would be just as impacted by priming as the specific autobiographical memory questions. This is not the pattern that was uncovered. Participants across conditions did not demonstrate a consistent difference on the general self-knowledge questions. Therefore, it can be concluded that priming is not an adequate explanation of the current results.

Another somewhat competing explanation of the results would be self-perception theory (Bem, 1967). Although, the proposed model has some similarity to self-perception theory, it offers some strikingly different predictions (Bem, 1967). According to self-perception theory, people reflect upon their previous behavior to infer their sense of self. However, if there is an overt explanation for the behavior, such as getting paid (Deci, Koestner, & Ryan, 1999; Warneken & Tomasello, 2008) then this conclusion is no longer drawn. Self-perception theory would state that performing impression management strategies would have little impact on the self because one would recall the need to make an impression as an explanation for the behavior. Therefore, the behavior would not be used to determine a sense of self.

On the other hand, the proposed model suggests that behaviors and intentions are not so clearly differentiated due to autobiographical memory distortion. The current model would predict that people do not necessarily become who they pretend to be by reflecting upon

behaviors. Rather, people become who they pretend to be by inadvertently altering their memories of specific events by using memory enhancement. It is via a true alteration to details in autobiographical memory that the proposed model operates. Although these are not exactly competing theories, the results of this experiment better support the predictions of the proposed model rather than the predictions of self-perception theory

Although the current experiment provides some support for the proposed model, there are limitations of this model that need to be explored by future research. It is likely that using memory enhancement repeatedly to create the same impression will have a more drastic impact on the long-term autobiographical memory of the event. Repetition makes even overtly wrong information appear accurate (Bacon, 1979). If a person repeatedly presents himself or herself as someone else, the impact on that person's autobiographical memory could be more drastic and long lasting. For instance, if Ben Carson told the altered story of the Popeye's robbery repeatedly, repetition could help solidify the event into his memory. This experiment was limited in that participants were only given the opportunity to use memory enhancement one time. It is possible that if participants had used memory enhancement more than once, the results for the responsibility traits would have more strongly supported Hypothesis 2.

It is also likely that this model is more impactful when people use their imagination to visualize the events when using memory enhancement. Imagining events has been demonstrated to be neurologically similar to actually experiencing events (Mazzoni & Memon, 2003). It is possible that by truly imagining a slightly altered version of an event, memory enhancement would create a stronger and more lasting impact on autobiographical memory. If Ben Carson spent time vividly imagining his altered version of the robbery, then he may experience more drastic and long term impacts on his long term memory. Future research should investigate if

imagining the events vividly increases the impact that memory enhancement has on the way events are recalled in the future.

The results of this experiment have implications on diverse bodies of literature as well as potential applications to real world problems. The results clearly demonstrate that memory enhancement occurs. This adds to the body of literature on impression management strategies by empirically investigating a new tactic people employ to create a specific impression. The results demonstrate that memory enhancement can impact future recall of events. This adds to the body of literature focusing on the malleability of autobiographical memory by demonstrating a new way in which people may alter their recollections of events. The results of this experiment also demonstrate that memory enhancement can have implications for a person's sense of self via autobiographical memory distortion. This adds to the body of literature focusing on the relationship between the self and memory by demonstrating that changes to specific autobiographical memories can translate to changes within the self.

Together the results of this study have broad implications for testimonies in court and research investigating lying in general. The results of this experiment demonstrate that people will use memory enhancement by altering the way events are shared to create a desired impression. In court cases, it is likely that the person giving a testimony will want to create a specific image (perhaps that they are innocent), so that person may rely on memory enhancement when recalling the events in question. In the current experiment, using memory enhancement only one time altered participants future recall of the same experiences. This suggests that by crafting a testimony to appear more innocent, may in fact alter the way the events are remembered. This could lead to false testimonies that the person giving the testimony may not even be aware of falsifying. This could be used to explain the many instances in which people

have falsely accused someone or gave a deciding testimony that was later determined to be inaccurate. Future research will help to uncover this intriguing possibility.

Research investigating lying could also benefit from this research. This model demonstrates a way in which lies may begin in a somewhat innocent fashion. Imagine the numerous times people have argued over the details of previous events. This disagreement could have begun when one of the people disclosed the experience to someone else in a slightly altered. This alteration can occur for many reasons, perhaps the events are exaggerated to make the storyteller appear more entertaining, perhaps embarrassing details are cut from the event, or perhaps details are added to the event to create a specific impression. This alteration to the events slowly becomes the storyteller's reality. Later, when the storyteller recalls the events to share with someone else, they are not lying although their recollection is inaccurate. This process, can account for many arguments among friends and colleagues who have different recollection of events but who are all completely confident in their own version. This has received very little empirical attention; however, it is a problem most people have faced.

Ultimately the results of this experiment provide initial support for the model being proposed. This model suggests that people, perhaps even unconsciously, transform their previous experiences into stories that help create the impression that they momentarily desire. This link in the model was supported by the results of Research Question 1. These stories are shared with others and overtime this version of the events becomes their true autobiographical memory of the events. This link in the model was supported by the results of Research Question 2. When people reflect upon their previous experiences to determine a sense of self, the altered story is recalled. People then make conclusions about their sense of self from inaccurate autobiographical memories of events. This link in the model was supported by the results of Research Question 3.

Together this provides a novel explanation for how people could become who they have pretended to be.

In Ben Carson's situation, described at the beginning of the paper, Carson wanted to gain the support of voters that he inadvertently angered after his remarks on gun violence. In order to create the impression that he understood what victims of gun violence went through, he shared his experience of being held at gunpoint. However, this story was later found to be false. According to the proposed model, it is possible that Carson truly believed that the events occurred as he described. After repeatedly using the impression management strategy of memory enhancement to present an inaccurate version of himself, Carson may have altered his memory of the occasion. His altered autobiographical memories are now an integral part of who he is as a person. When Carson reflects upon his previous memory of the event, he will likely use his altered autobiographical memories to create a sense of self. If this is the case, then Carson has truly become the person he pretended to be by using memory enhancement.

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Table 1

*Frequencies selecting which personality is assigned to video rating task by condition*

Condition	Which personality type will be assigned to rate videos?				$\chi^2$ (6, n = 359)
	Outgoing	Responsible	Random	Generous	
Outgoing	119 (95.2%)	1 (0.8%)	4 (3.2%)	1 (0.8%)	514**
Responsible	8 (6.8%)	107 (91.5%)	0 (0%)	2 (1.7%)	
Control	23 (19.7%)	3 (2.6%)	91 (77.8%)	0 (0%)	

*Note.* \*\* =  $p < .001$ . This Table represents the results of a Chi-square test for independence conducted to determine if the manipulation was successful as demonstrated by independence of condition.

Table 2

*Analysis of Variance for The Specific Sociability Index*

	<i>df</i>	<i>F</i>	$\eta^2$	<i>P</i>
Condition	2	4.67*	.03	.01
Order	1	4.64*	.01	.03
Story X Facts	2	0.74	.004	.48
Error	352			

*Note.* This Table represents the results of a  $2 \times 3$  (Order [Specific first, General first]  $\times$  Condition [Outgoing, Responsible, or Control]) between groups analysis of variance on the specific sociability index.

Table 3

*Specific Sociability Index Scores for Condition and Order*

Order	Condition			
	Outgoing	Responsible	Control	Total
General First	71.57 (19.02)	67.88 (18.30)	64.50 (19.46)	68.02 <sub>a</sub> (19.06)
Specific First	76.82 (17.20)	68.76 (16.17)	70.88 (19.33)	72.26 <sub>b</sub> (17.83)
Total	74.15 <sub>a</sub> (18.26)	68.31 <sub>b</sub> (17.22)	67.55 <sub>b</sub> (19.58)	

*Note.* Standard deviations appear in parentheses below means. Means with differing subscripts within rows and columns are significantly different at  $p < .05$  based on Tukey's post hoc comparisons.

Table 4

*Analysis of Variance for The Specific Responsibility Index*

	<i>df</i>	<i>F</i>	$\eta^2$	<i>p</i>
Condition	2	8.79	.05	< .001
Order	1	12.03	.03	< .001
Story X Facts	2	5.16	.03	.02
Error	353			

*Note.* This Table represents the results of a  $2 \times 3$  (Order [Specific first, General first]  $\times$  Condition [Outgoing, Responsible, or Control]) between groups analysis of variance on the Specific Responsibility Index.

Table 5

*Specific Sociability Index Scores for Condition and Order*

Order	Condition			
	Outgoing	Responsible	Control	Total
General First	62.17 <sub>a</sub> (13.16)	67.87 <sub>b</sub> (13.23)	61.40 <sub>a</sub> (12.00)	63.76 (13.06)
Specific First	52.40 <sub>a</sub> (17.18)	61.25 <sub>b</sub> (13.75)	62.69 <sub>b</sub> (12.39)	58.61 (14.40)
Total	57.40 <sub>a</sub> (15.96)	64.64 <sub>b</sub> (13.83)	62.02 <sub>b</sub> (12.15)	

*Note.* Standard deviations appear in parentheses below means. Means with differing subscripts within columns are significantly different at  $p < .05$  based on Tukey's post hoc comparisons.

Table 6

*Analysis of Variance for The Coders' Specific Sociability Index*

	<i>df</i>	<i>F</i>	$\eta^2$	<i>p</i>
Condition	2	5.55	.03	.01
Order	1	5.02	.02	.03
Condition X Order	2	5.16	.03	.02
Error	340			

*Note.* This Table represents the results of a  $2 \times 3$  (Order [Specific first, General first]  $\times$  Condition [Outgoing, Responsible, or Control]) between groups analysis of variance on the Coders' Specific Sociability index.

Table 7

*Coders' Specific Sociability Index Scores for Condition and Order*

Order	Condition			
	Outgoing	Responsible	Control	Total
General First	61.13 (13.28)	56.90 (10.85)	56.68 (14.50)	58.29 <sub>a</sub> (13.07)
Specific First	64.75 (12.96)	59.86 (10.64)	59.28 (13.91)	61.40 <sub>b</sub> (12.55)
Total	62.89 <sub>a</sub> (13.19)	58.31 <sub>b</sub> (10.81)	57.94 <sub>b</sub> (13.91)	

*Note.* Standard deviations appear in parentheses below means. Means with differing subscripts within columns and rows are significantly different at  $p < .05$  based on Tukey's post hoc comparisons.

Table 8

*Analysis of Variance for The Coders' Specific Responsibility Index*

	<i>df</i>	<i>F</i>	$\eta^2$	<i>p</i>
Condition	2	9.43	.05	< .001
Order	1	.35	.001	.55
Condition X Order	2	.12	.001	.85
Error	337			

*Note.* This Table represents the results of a  $2 \times 3$  (Order [Specific first, General first]  $\times$  Condition [Outgoing, Responsible, or Control]) between groups analysis of variance on the Coders' Specific Responsibility Index.

Table 9

*Coders' Specific Responsibility Index Scores for Condition and Order*

Order	Condition			
	Outgoing	Responsible	Control	Total
General First	65.11 (10.53)	68.93 (9.35)	69.44 (8.93)	58.29 (13.07)
Specific First	65.19 (8.42)	70.26 (8.16)	69.76 (8.28)	61.40 (12.55)
Total	65.15 <sub>a</sub> (9.50)	69.60 <sub>b</sub> (8.75)	69.60 <sub>b</sub> (8.58)	

*Note.* Standard deviations appear in parentheses below means. Means with differing subscripts within columns and rows are significantly different at  $p < .05$  based on Tukey's post hoc comparisons.

Table 10

*Analysis of Variance for The General Self-knowledge Sociability Index*

	<i>df</i>	<i>F</i>	$\eta^2$	<i>p</i>
Condition	2	.56	.003	.57
Order	1	5.24	.02	.02
Condition X Order	2	1.39	.01	.25
Error	353			

*Note.* This Table represents the results of a  $2 \times 3$  (Order [Specific first, General first]  $\times$  Condition [Outgoing, Responsible, or Control]) between groups analysis of variance on the General Self-knowledge Sociability Index.

Table 11

*Analysis of Variance for The General Self-knowledge Responsibility Index*

	<i>df</i>	<i>F</i>	$\eta^2$	<i>p</i>
Condition	2	.89	.005	.41
Order	1	1.86	.005	.17
Condition X Order	2	3.45	.03	.03
Error	353			

*Note.* This Table represents the results of a  $2 \times 3$  (Order [Specific first, General first]  $\times$  Condition [Outgoing, Responsible, or Control]) between groups analysis of variance on the General Self-knowledge Responsibility Index.

Table 12

*General Self-knowledge Responsibility Index Scores for Interaction*

Order	Condition			Total
	Outgoing	Responsible	Control	
General First	73.25 (13.64)	72.68 (14.90)	70.48 (12.97)	58.29 (13.07)
Specific First	66.26 <sub>a</sub> (17.27)	71.20 <sub>b</sub> (12.31)	72.89 <sub>b</sub> (11.93)	61.40 (12.55)
Total	69.84 (15.85)	71.96 (13.66)	71.63 (12.49)	

*Note.* Standard deviations appear in parentheses below means. Means with differing subscripts within columns and rows are significantly different at  $p < .05$  based on Tukey's post hoc comparisons.

Table 13

*Analysis of Variance for The Specific Sociability Index 2*

	<i>df</i>	<i>F</i>	$\eta^2$	<i>p</i>
Condition	2	4.28	.02	.02
Order	1	5.35	.02	.02
Condition X Order	2	.28	.002	.76
Error	353			

*Note.* This Table represents the results of a  $2 \times 3$  (Order [Specific first, General first]  $\times$  Condition [Outgoing, Responsible, or Control]) between groups analysis of variance on the specific sociability index 2 from the second questionnaire.

Table 14

*The Specific Sociability Index 2 Scores for Condition and Order*

Order	Condition			Total
	Outgoing	Responsible	Control	
General First	69.48 (17.60)	65.06 (17.15)	62.25 (17.19)	65.66 <sub>a</sub> (17.15)
Specific First	73.61 (19.97)	67.77 (16.52)	68.40 (19.97)	70.02 <sub>b</sub> (18.55)
Total	71.49 <sub>a</sub> (18.22)	66.38 <sub>a b</sub> (16.27)	65.20 <sub>b</sub> (18.75)	

*Note.* Standard deviations appear in parentheses below means. Means with differing subscripts within columns and rows are significantly different at  $p < .05$  based on Tukey's post hoc comparisons.

Table 15

*Analysis of Variance for The Specific Responsibility Index 2*

	<i>df</i>	<i>F</i>	$\eta^2$	<i>p</i>
Condition	2	1.06	.01	.35
Order	1	8.29	.02	.02
Condition X Order	2	1.98	.01	.14
Error	353			

*Note.* This Table represents the results of a  $2 \times 3$  (Order [Specific first, General first]  $\times$  Condition [Outgoing, Responsible, or Control]) between groups analysis of variance on the Specific Responsibility Index 2 from the second questionnaire.

Table 16

*The Specific Responsibility Index 2 Scores for Condition and Order*

Order	Condition			Total
	Outgoing	Responsible	Control	
General First	64.62 (12.38)	64.60 (17.15)	62.68 (14.69)	63.97 <sub>a</sub> (13.64)
Specific First	56.12 (17.41)	61.50 (12.19)	61.18 (14.88)	59.51 <sub>b</sub> (15.51)
Total	60.47 (15.58)	63.09 (16.27)	61.96 (14.74)	

*Note.* Standard deviations appear in parentheses below means. Means with differing subscripts within columns and rows are significantly different at  $p < .05$  based on Tukey's post hoc comparisons.

Table 17

*Analysis of Variance for The Coders' Specific Sociability Index 2*

	<i>df</i>	<i>F</i>	$\eta^2$	<i>p</i>
Condition	2	7.26	.04	< .001
Order	1	3.75	.01	.05
Condition X Order	2	1.98	.01	.14
Error	340			

*Note.* This Table represents the results of a  $2 \times 3$  (Order [Specific first, General first]  $\times$  Condition [Outgoing, Responsible, or Control]) between groups analysis of variance on the Coders' Specific Sociability Index 2 from the second questionnaire.

Table 18

*The Coders' Specific Sociability Index 2 Scores for Condition and Order*

Order	Condition			Total
	Outgoing	Responsible	Control	
General First	55.81 (13.91)	50.51 (13.67)	51.43 (13.70)	52.69 <sub>a</sub> (13.64)
Specific First	60.05 (14.97)	53.55 (11.37)	52.72 (14.13)	55.56 <sub>b</sub> (15.51)
Total	57.86 <sub>a</sub> (14.53)	51.99 <sub>b</sub> (12.64)	52.06 <sub>b</sub> (13.86)	

*Note.* Standard deviations appear in parentheses below means. Means with differing subscripts within columns and rows are significantly different at  $p < .05$  based on Tukey's post hoc comparisons.

Table 19

*Analysis of Variance for The Coders' Specific Responsibility Index 2*

	<i>df</i>	<i>F</i>	$\eta^2$	<i>p</i>
Condition	2	1.03	.01	.36
Order	1	.001	< .001	.98
Condition X Order	2	.60	.004	.55
Error	337			

*Note.* This Table represents the results of a  $2 \times 3$  (Order [Specific first, General first]  $\times$  Condition [Outgoing, Responsible, or Control]) between groups analysis of variance on the Coders' Specific Responsibility Index 2 from the second questionnaire.

Table 20

*Predictors of the General Self-knowledge Sociability Index 2*

Variable	<i>B</i>	95% CI
GSK	0.24*	[.13, .35]
Specific	0.47*	[.41, .66]
R <sup>2</sup>	0.42	
F	129.4*	

*Note.* N = 355. CI = confidence interval. GSK = General Self-knowledge Sociability Index. Specific = Specific sociability index. This Table represents the results of a linear regression in which scores on the General Self-knowledge Sociability Index and the scores on the specific sociability index are regressed upon the general self-knowledge sociability scores at Time 2. \*  $p < .0001$ .

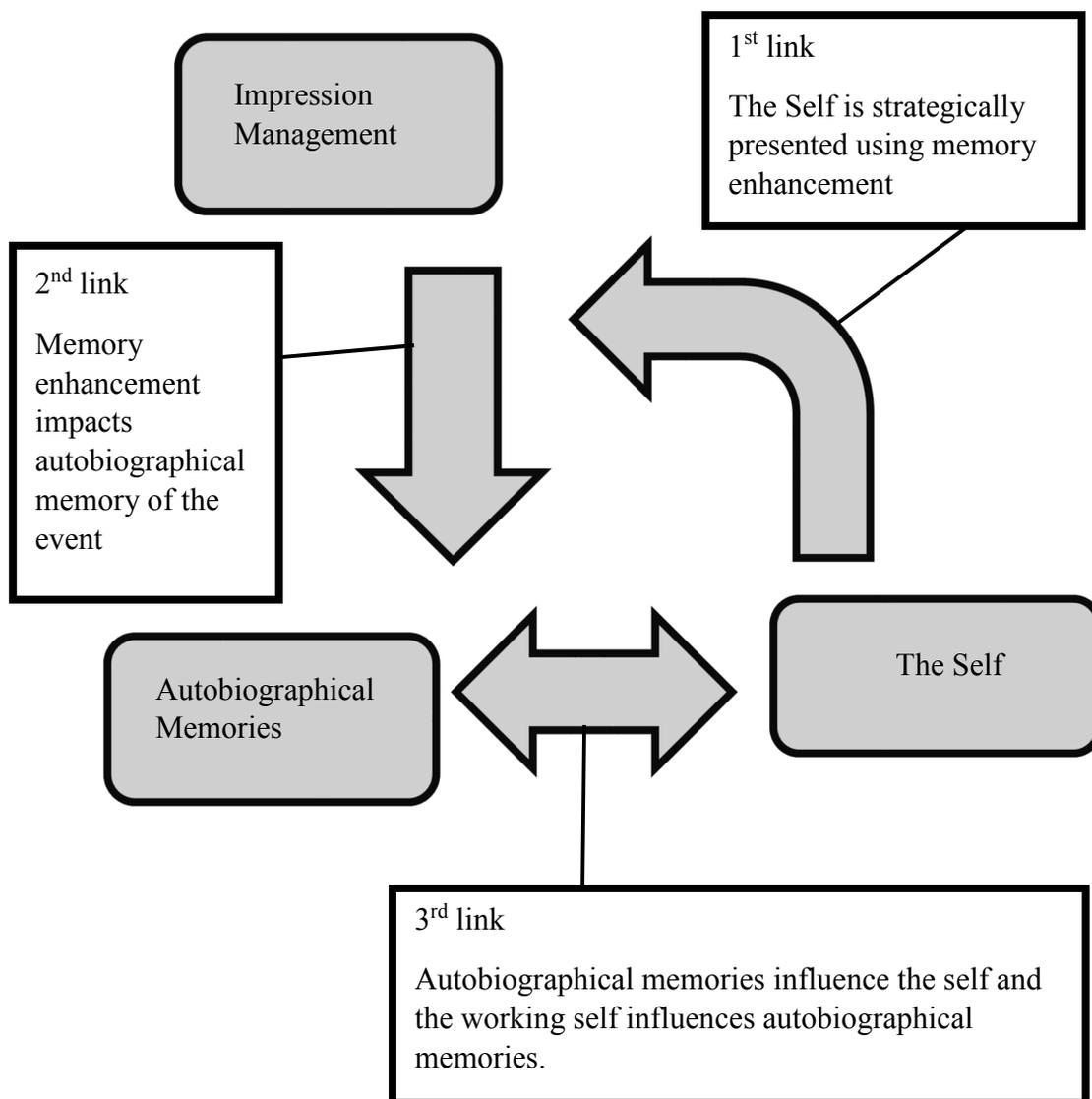
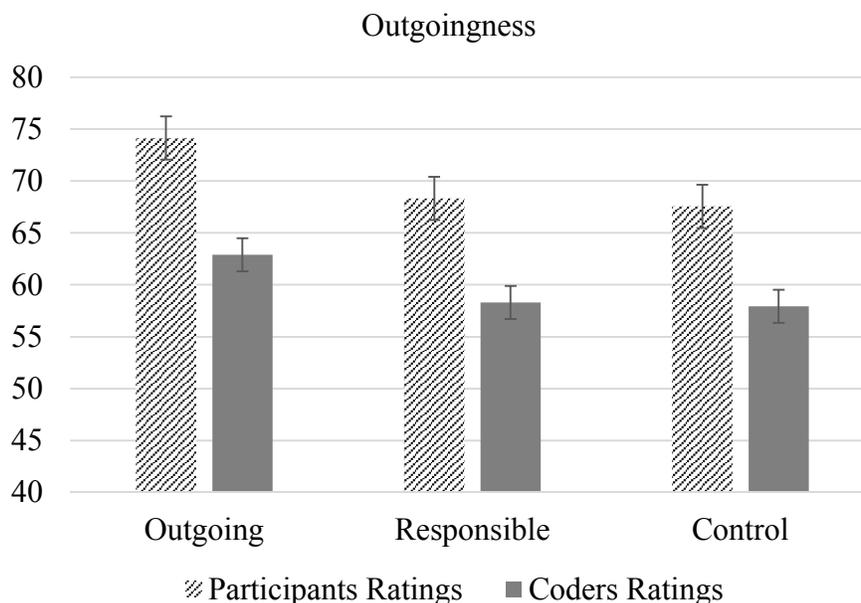
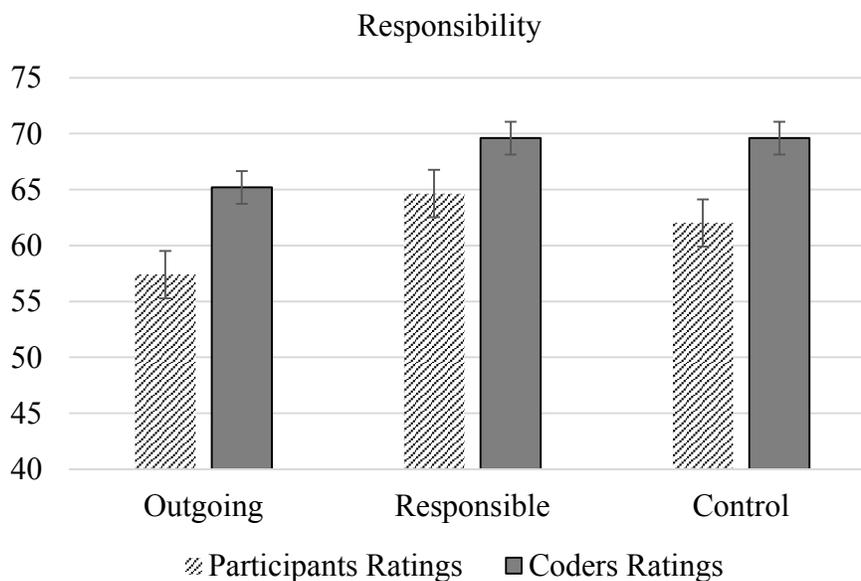


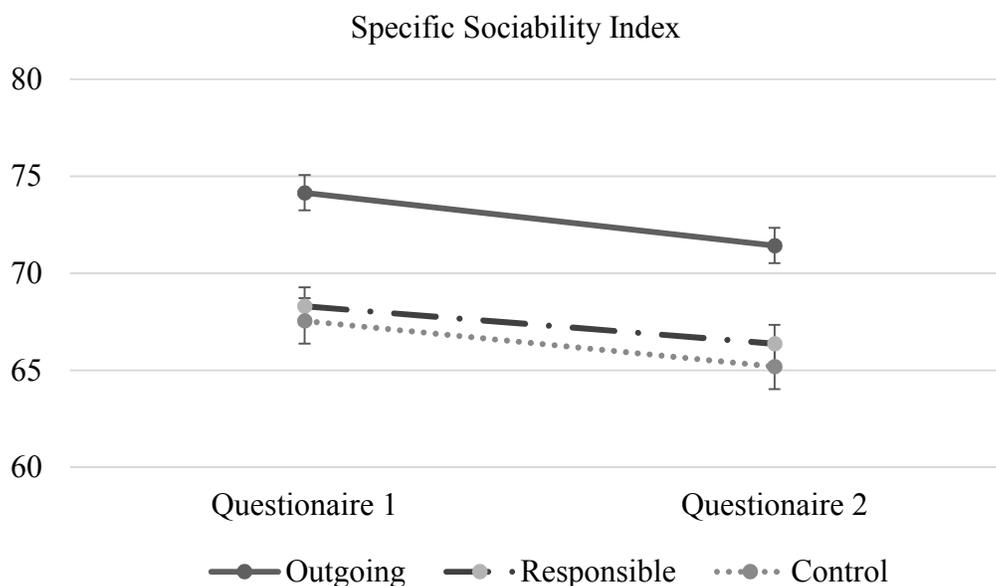
Figure 1. Model illustrating how the way memories are shared can influence the self.



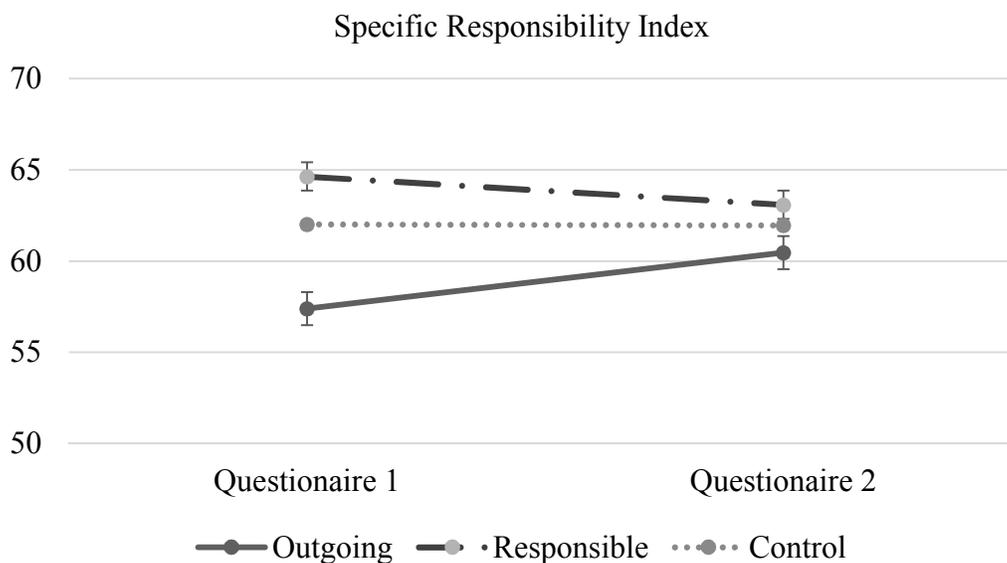
*Figure 2.* Specific sociability scores at Time 1 (Questionnaire 1) are presented in Figure 2, illustrating that the Outgoing condition reported specific autobiographical memories there were rated as significantly more indicative of outgoingness compared to the other two conditions by both participants and coders. Standard error bars are included for each condition.



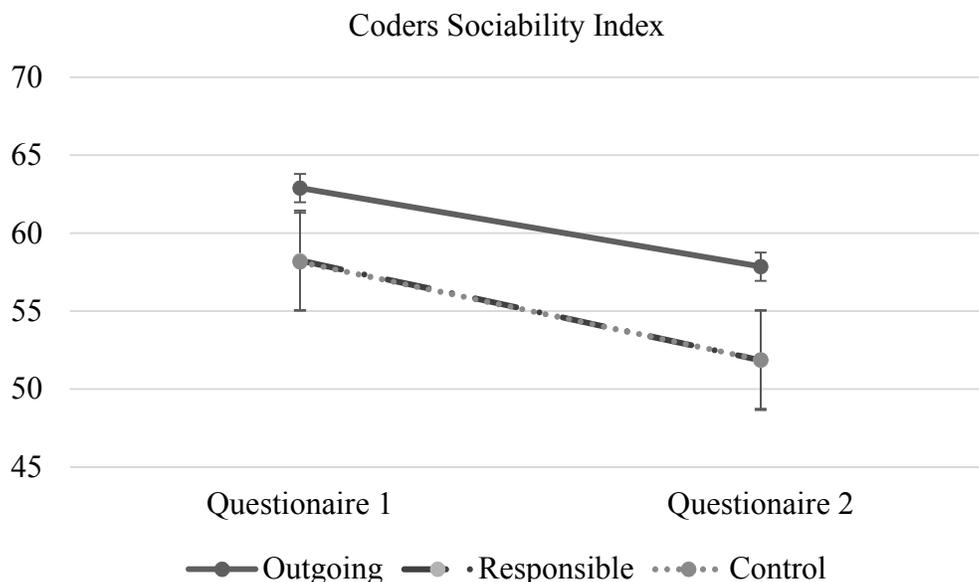
*Figure 3.* Specific responsibility scores at Time 1 (Questionnaire 1) are presented in Figure 2, illustrating that the Responsible condition reported specific autobiographical memories there were rated as significantly more indicative of responsibility compared to the outgoing condition by both participants and coders. Standard error bars are included for each condition.



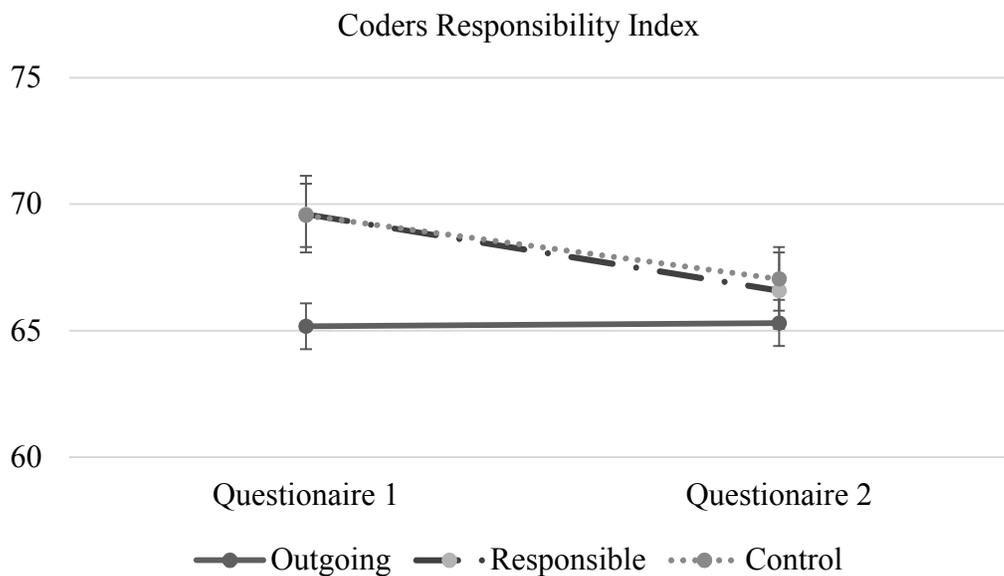
*Figure 4.* Specific sociability scores across Time 1 (Questionnaire 1) and Time 2 (Questionnaire 2) are presented in Figure 4, illustrating that the outgoing condition rated significantly higher on the sociability index at Time 1 and at Time 2 compare to the other two conditions. Standard error bars are included at each time point for each condition.



*Figure 5.* Specific responsibility scores across Time 1 (Questionnaire 1) and Time 2 (Questionnaire 2) are presented in Figure 5. This graph illustrate that the responsible condition decreased their ratings on the Specific Responsibility Index over time and the outgoing condition increased their ratings on the Specific Responsibility Index over time. Standard error bars are included at each time point for each condition.



*Figure 6.* Coders' Specific Sociability Index scores across Time 1 (Questionnaire 1) and Time 2 (Questionnaire 2) are presented in Figure 4. This Figure illustrates that the outgoing condition rated significantly higher on the Coders' Sociability Index at Time 1 and at Time 2 compare to the other two conditions. Standard error bars are included at each time point for each condition.



*Figure 7.* Coders' Specific Responsibility Index scores across Time 1 (Questionnaire 1) and Time 2 (Questionnaire 2) are presented in Figure 5. This graph illustrates that the responsibility and control condition decreased their ratings on the Specific Responsibility Index over time and the outgoing condition increased their ratings on the Specific Responsibility Index over time. Standard error bars are included at each time point for each condition.

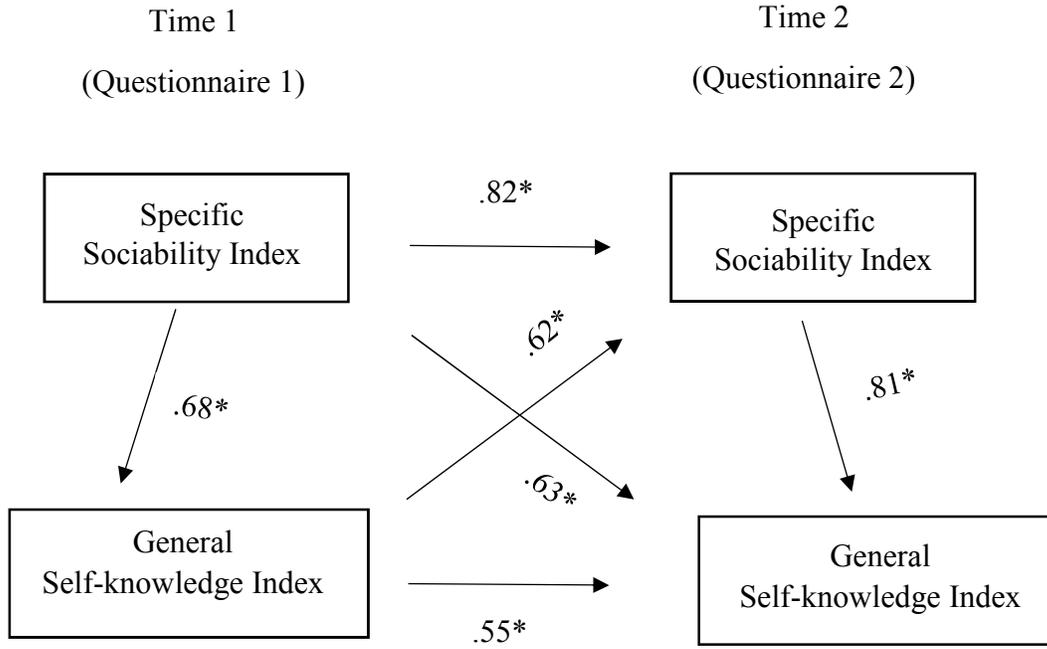


Figure 8. A cross-lagged correlation was conducted to understand the relationship between the sociability indexes. \* =  $p < .001$

## Appendix A

### General-Self Knowledge Questions

Rate yourself on the following personality traits. With 1 being this trait does not at all describe me and 100 being this trait describes me exactly.

- |                |                             |
|----------------|-----------------------------|
| 1. Introverted | 8. Outgoing                 |
| 2. Quiet       | 9. Social                   |
| 3. Responsible | 10. Open to new experiences |
| 4. Positive    | 11. Negative                |
| 5. Kind        | 12. Conscientious           |
| 6. Brave       | 13. Daring                  |
| 7. Creative    |                             |

### Specific Autobiographical Memory Questions

In the text box below, please describe in as much detail as you can recall your first day of college (what did you wear, who was there, how did you feel, etc.)

What was the BEST part of this experience?

Please read your description of your first day of college and think about your personality from this description only. "{{Insert their description}}"

Please indicate the extent to which each trait describes your personality based **ONLY** on your description of your first day of college. On a scale of 1 (not at all descriptive of me IN THE EVENT DESCRIBED) to 100 (an exact descriptor of me IN THE EVENT DESCRIBED).

- |                |                             |
|----------------|-----------------------------|
| 1. Introverted | 8. Outgoing                 |
| 2. Quite       | 9. Social                   |
| 3. Responsible | 10. Open to new experiences |
| 4. Positive    | 11. Negative                |
| 5. Kind        | 12. Conscientious           |
| 6. Brave       | 13. Daring                  |
| 7. Creative    |                             |

Questions repeated but ask for a description of the participants last New Year's Eve instead of first day of college.

**Appendix B**

## Video Rating Task

1. How funny do you believe this video was?

Not at all	Slightly	Neutral	Somewhat	Very Much
1	2	3	4	5

2. How much did you enjoy watching this video?

Not at all	Slightly	Neutral	Somewhat	Very Much
1	2	3	4	5

3. How much did you pay attention while watching this video?

Not at all	Slightly	Neutral	Somewhat	Very Much
1	2	3	4	5

4. How much did this video make you laugh?

Not at all	Slightly	Neutral	Somewhat	Very Much
1	2	3	4	5

## **Appendix C**

### **Specific Autobiographical Memory Examples.**

#### **Participant 1**

##### **First Day of College Time 1 (First Questionnaire)**

“The first day of college was very exciting. I was excited to meet new friends and was happy that I was finally going to begin a new part of my life. I was a bit nervous on the first day, but also very excited. I had a lot of fun meeting my new professors and finally starting classes that would actually help me in my career. I had old friends from high school in some classes and this helped settle my nerves a little, but I also enjoyed meeting new people from all over the place.”

“The best part of this experience was meeting new people”

##### **First Day of College Time 2 (Second Questionnaire)**

“The first day of college was quite an exciting one for me. I was very nervous as I always am when starting a new school year, but this year especially because college is completely different than high school. I remember going to all of my classes and being very fond of my professors. I like the environment of every class and knew that I loved it here. Professors seemed to care deeply about all of the students and they made that palpable from the first day”

“The best part of my experience was meeting many new people. It was very interesting to see everyone from all over the world coming to one place to learn. I met many people that were not even from this country. I made many new friends and still continue to make new friends daily because how big and full this campus is”.

**Participant 2****Most Recent New Year's Eve Time 1 (First Questionnaire)**

“At New Years Eve, I wore running tights, donut printed converse, and a long sleeve t-shirt. I went over to my cousin's house and a bunch of our friends joined us. We played several games like Pictionary, Ping Pong, and other small activities. We had sparkling grape juice all night and especially when midnight rolled around. Everybody that was there were runners so we had many discussions about different races and people that we knew from crosscountry and track. I had a lot of fun and was never bored. It was a very humorous and entertaining night.”

“The best part of the experience was being able to socialize all evening with my friends because I don't get to do that very often.”

**First Day of College Time 2 (Second Questionnaire)**

“I went to my cousin's house for New Year's Eve with a couple of my friends. A lot of his teammates were there; it was basically a crosscountry party. I wore running tights and a long sleeve t-shirt. I had a lot of fun. We drank a lot of sparkling grape juice.”

“The best part was getting to hang out with all my friends.”

## Appendix D



Office of Research Compliance  
Institutional Review Board

November 10, 2016

## MEMORANDUM

TO: Holly Cole  
Denise Beike

FROM: Ro Windwalker  
IRB Coordinator

RE: New Protocol Approval

IRB Protocol #: 16-10-188

Protocol Title: *Task Completion and Personality*

Review Type:  EXEMPT  EXPEDITED  FULL IRB

Approved Project Period: Start Date: 11/07/2016 Expiration Date: 11/06/2017

Your protocol has been approved by the IRB. Protocols are approved for a maximum period of one year. If you wish to continue the project past the approved project period (see above), you must submit a request, using the form *Continuing Review for IRB Approved Projects*, prior to the expiration date. This form is available from the IRB Coordinator or on the Research Compliance website (<https://vpred.uark.edu/units/rscp/index.php>). As a courtesy, you will be sent a reminder two months in advance of that date. However, failure to receive a reminder does not negate your obligation to make the request in sufficient time for review and approval. Federal regulations prohibit retroactive approval of continuation. Failure to receive approval to continue the project prior to the expiration date will result in Termination of the protocol approval. The IRB Coordinator can give you guidance on submission times.

**This protocol has been approved for 800 participants.** If you wish to make *any* modifications in the approved protocol, including enrolling more than this number, you must seek approval *prior to* implementing those changes. All modifications should be requested in writing (email is acceptable) and must provide sufficient detail to assess the impact of the change.

If you have questions or need any assistance from the IRB, please contact me at 109 MLKG Building, 5-2208, or [irb@uark.edu](mailto:irb@uark.edu).