BEHAVIORAL MEASURES OF FALSE MEMORIES

by

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Students of social psychology may be excused if they form the erroneous impression that an attitude is nothing more than a mark drawn on a piece of paper. In almost all studies of attitude-behavior consistency, the researchers have participants place marks on paper-and-pencil attitude scales and then use these responses to predict a subsequent measure of behavior or behavioral intention (for reviews, see Eagly & Chaiken, 1993; Lord & Lepper, 1999; Wicker, 1969; Schuman & Johnson, 1976). Similarly, in almost all studies of attitude change, the researchers use some type of experimental manipulation and then assess the effect of that manipulation on participants' subsequent responses to paper-and-pencil attitude scales (for reviews see Eagly & Chaiken, 1993; Petty & Cacioppo, 1981). In both literatures, the term "attitude" might appear to be used synonymously with the marks that participants make on one or more paper-and-pencil scales.

Introduction

*Attitude Representation Theory*

Eagly and Chaiken (1993) define an attitude as "a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor" (p. 1). This tendency is influenced by individuals' prior experience with the object in question. An explanation of why this tendency exists comes from Attitude Representation Theory (ART; Lord & Lepper, 1999). According to ART, a mental representation is activated when an individual attempts to evaluate an attitude object. This mental representation consists of exemplars, characteristics, emotions, and prior experiences with the attitude object. These elements can combine with an individual's current perception of the attitude object to affect his or her attitude relevant response. This response may appear through the individual's

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behavioral intentions, judgments, and feelings about the attitude object (Lord & Lepper, 1999).

Confusion might arise if students do not realize that attitude researchers use the term "attitude" as a shorthand for "a psychological tendency to evaluate an entity with favor or disfavor" (Eagly & Chaiken, 1993, p. 1), where "evaluate" refers to "overt or covert, cognitive, affective, and behavioral responses" (Eagly & Chaiken, 1993, p. 2). The attitude referred to in most studies of attitude-behavior consistency and attitude change might more accurately be called an "attitude report," because it is but one of many evaluative responses that constitute an individual's attitude. The attitude report is treated as a proxy for an individual's overall attitude because the researcher hopes that in answering attitude scales the individual will accurately summarize his or her entire array of thoughts, feelings, and actions toward the attitude object (Tourangeau & Rasinski, 1988).

*Unobtrusive Attitude Measures*

Unfortunately, we cannot always rely on attitude reports to be accurate summaries. On sensitive topics, people might not want to admit to negative thoughts, feelings, or behavior, and might distort their answers to attitude scales in a socially desirable or politically correct direction. The biasing effects of social desirability are well known and have led to numerous disguised attitude assessment techniques, such as unobtrusive observation (Crosby, Bromley, & Saxe, 1980), bogus pipelines (Gaes, Kalle, & Tedeschi, 1978), and implicit measures (Greenwald, McGhee, & Schwartz, 1998; Nosek & Banaji, 2001). Even when participants are motivated to provide accurate summaries, however, attitude reports might still be biased by lack of awareness (Nisbett & Wilson, 1977) and by context effects that can change from one situation to the next (Schwarz, 1998). An attitude

report represents an individual's belief about his or her attitude, and even honestly held beliefs about one's own thoughts, motives, or intentions can be misguided or unstable (Wegner, 2002). Attitude reports and other evaluative responses might differ in two separate attitude-relevant episodes, for instance, merely because different associations to the attitude object have become momentarily salient and accessible (Lord & Lepper, 1999).

Focusing on the exemplar element of the attitude object representation, individuals have a number of pre-existing exemplars varying in valence. Logically, one way to produce a change in attitude relevant responses is to activate one of these pre-existing exemplars. Sia, Lord, Blessum, Ratcliff, and Lepper (1997) showed this effect by activated existing positive exemplars, which resulted in more positive attitude reports. Another way to conceivably achieve a change in attitude relevant responses is to add a new exemplar. Graham, Weiner, Guiliano, and Williams (1993) showed that after Magic Johnson publicized that he had AIDS (HIV), public opinion of people with AIDS became more positive. Before Johnson revealed he contracted HIV, the exemplars the public had of people with the virus were most likely not very positive. However, after Magic Johnson announced that he had AIDS, people gained a strong, positive exemplar of people with AIDS, which made their attitude reports towards people with AIDS more positive.

*False Memories*

People often find themselves questioning whether an event actually happened. Distinguishing between actual and imagined events can prove difficult and sometimes impossible. Researchers have shown that memories can become distorted for many types of memories. Pezdek, Finger, and Hodge (1997) suggest that false memories are formed as a result of information already held in memory related to the action. Loftus' (1993) lost-in-the-

mall study is perhaps the most widely known attempt to generate false memories for events that never occurred (Garry & Polaschek, 2000). Participants read descriptions of four events that allegedly occurred during their childhood. Three of the events were true; however, the fourth, getting lost in a shopping mall, was not true. Over several weeks participants wrote what they could recall about each event, and in the last session, around 25% of the participants remembered being lost in a shopping mall as a true event (Loftus, 1993). Thomas and Loftus (2002) have even shown that participants can remember not only familiar or mundane actions, but also bizarre actions such as alien abductions (Clark & Loftus, 1996). Garry, Manning, Loftus, and Sherman (1996) found that after participants were asked to briefly imagine various childhood episodes, participants rated that they had more confidence that false events they imagined had occurred over true events. This increase in participant's confidence that these imagined events actually occurred is identified as *imagination inflation*. This imagination inflation may be explained by either source confusion or familiarity (Garry & Polaschek, 2000).

There is considerable debate regarding false memories, including whether they are truly "false" and whether creating false memories is ethical (Garry & Polaschek, 2000; Crook & Dean, 1999). Especially controversial is using children as subjects in false memory or suggestibility research (Ceci, Bruck, & Loftus, 1998; Crook & Dean, 1999). It can be suggested that individuals are not actually forming false memories, but rather merely remembering past events they have forgotten or bowing to experimenter demand.

*Past Behaviors and Attitude Change*

The episodic nature of attitude reports and other cognitive, affective, and behavioral responses suggests that evaluative responses in one episode can affect evaluative responses in

future episodes. Individuals who respond in a positive way to an attitude object today might be expected to respond in a positive way tomorrow, in part because they did so today. This reasoning led to studies of role playing, in which participants who were induced to act positively toward an attitude object in one experimental session provided more positive attitude reports in a second session (Janis & King, 1954). Similarly, freely chosen positive behaviors toward a boring task led to more positive subsequent attitude reports about the task (Festinger & Carlsmith, 1959) and negative actions toward an attractive toy led to more negative subsequent attitude reports and greater behavioral avoidance of the toy (Lepper, 1970), and positive actions toward public service campaigns led to greater subsequent behavioral support of similar campaigns (Freedman & Fraser, 1966). One positive or negative response begets another, presumably because something about the first evaluative response becomes associated with the attitude object in memory.

*Memories of Past Actions*

Thinking about doing something often distorts individuals' perceptions of reality. This distortion can prove irritating or confusing when attempting to distinguish reality from fiction. Many people do not make this distinction and therefore true and imagined events become muddled into their memories. Previous research by McIntyre, Lord, Lewis, and Frye (2003) examining the influence of false memories on attitudes has shown that the more fictitious events participants remember, the more their attitudes change. The implications of these findings suggest that individuals who falsely remember performing an action towards a social group might behave differently.

The current research extends McIntyre et al.'s (2003) research by demonstrating the effect of false memories using behavioral measures, whereas attitude change was measured

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by subjective attitude reports filled out by participants in McIntyre et al.'s (2003) study. Overt behaviors toward a target became more positive after individuals incorporated new positive actions into their representation of the target.

If this account is correct, if one positive or negative response to an attitude object leads to another because the first response creates a memory trace that informs the second, then the effect should occur whether the memory is veridical or not. Instead of inducing individuals into positive or negative evaluative responses by having them enact initial behaviors toward the attitude object, it might prove as effective to implant memories of having taken the relevant actions. The idea of "implanting" memories might at first seem like nothing more than science fiction. Many carefully conceived studies, however, have established the feasibility of implanting memories, even "memories" that are undeniably false.

McIntyre (2003) borrowed these well researched techniques in an attempt to implant attitude-relevant memories that were false, or at least unlikely. In an initial session, participants completed attitude scales to report their attitudes toward several social categories, one of which was gay men. They also circled, from a list of 66 positive and negative actions, all the actions that they had ever taken toward one or more members of each category. When they had circled all the relevant actions, they were told to go back over the lists carefully to be absolutely positive that they had never taken any of the other actions that they had not circled. One week later, in an "unrelated study" supposedly concerned with "script writing," the same participants wrote hypothetical scenarios in which they took one of the actions that they had previously circled, and three actions (either all positive or all negative) that they had not previously circled, and had therefore denied ever taking toward

gay men. The participants were asked to include specific details and an "interior monologue" in each scenario, because previous research had shown that these elements render hypothetical actions especially likely to be confused with actual actions in memory (Johnson & Raye, 1981).

Finally, two weeks after they had written the hypothetical scenarios, participants provided attitude reports on the same scales as before, and once again circled all the actions they had ever taken toward members of the social categories. The researchers' central predictions were supported. Participants changed their attitude reports in the direction of their hypothetical scenarios, but only when they circled one or more of the relevant actions, that they had previously denied. Thus false (or at least unlikely) memories of actions toward the target group affected attitude reports, consistent with an account in which memories of previous evaluative responses inform subsequent evaluative responses

McIntyre et al. (2003) also found that implanted memories affected attitude reports only toward the group involved in the hypothetical scenarios, not other groups, and that hypothetical scenarios created false or unlikely memories and changed attitude reports only when written in the first person, and not when they involved someone else as the main character. Finally, McIntyre et al. (2003) addressed the possibility that changes in memories and in attitude reports might have been caused by participants' desire to please the experimenter. They considered this mechanism unlikely because no participant was able to guess the experimental hypothesis and because the Crowne Marlow need for approval scale did not predict either false memories or changed attitude reports.

Even so, the primary dependent measure in McIntyre et al.'s (2003) experiments consisted of attitude reports. For the reasons outlined above, attitude reports might not reflect

actual attitudes, which include an entire array of cognitive, affective, and behavioral evaluative responses. It is possible, given McIntyre et al.'s (2003) procedures, that participants were somehow led to believe that they had taken the actions involved in their hypothetical scenarios, and also led to believe that their overall attitudes were more positive (or more negative) than they had previously reported, and yet it was their summary beliefs rather than their actual attitudes that were altered. They might have claimed to have more positive (or more negative) attitudes, and yet the manipulation might have changed what they said and left unchanged what they would do in an actual situation that involved one or more gay men.

*Physical Distance and Attitudes*

The false memory research of McIntyre et al. (2003) shows that falsely remembering positive or negative actions after writing hypothetical scenarios can change attitude reports. The present research attempted to provide further evidence for the effect of false memories on people's attitudes by showing behavioral change. The current research employed a "waiting-room" procedure used by Ramsey, Lord, Wallace, and Pugh (1994, Experiment 2) to measure seating distance from a target's belongings, combined with a procedure used by Lord, Desforges, Ramsey, Trezza and Lepper (1991, Experiment 1) measuring typicality effects by having participants rate a guest speaker.

Ramsey et al. (1994, Experiment 2) examined the affect of subtypes on chosen seating distance by having participants partnered with a former substance abuser. In Session 1 of Ramsey et al.'s (1994) Experiment 2, participants provided attitude ratings towards several social groups including the target group, substance abusers, and described their idea of a "typical substance abuser." The participants also rated how much they liked or disliked

people who are substance abusers and how confident they were in their description of a typical substance abuser. Four subtypes were generated from the participants' answers in Session 1: alcohol abuser, narcotics abuser, cocaine abuser, and marijuana abuser. The following week, the participants returned for Session 2 where they were randomly assigned to one of three conditions: matching subtype, mismatching subtype, and no subtype.

Participants were given background information about two people who would soon be visiting from another university and possibly be partnered with them for Session 3. In all conditions, one of the potential partners was "normal," meaning substance abuse was not mentioned in their background information. However, in the matching subtype condition, the other potential partner was identified as a former substance abuser and matched the participant's description of a typical substance abuser from Session 1; whereas in the mismatching subtype condition, the second potential partner, who was also identified as a former substance abuser, did not match the participant's description of a typical substance abuser from Session 1. In the no subtype condition, the second partner was also identified as a former substance abuser, but no subtype was conveyed.

For Session 3, the participants returned one week later for individual sessions where they were informed they were paired up with one of the two people they read about the previous session, and in all conditions this person was the former substance abuser. The experimenter gave the participants the background sheets again to remind them who they were partnered with and led them to a room containing only a six foot bench against one wall. At the end of the bench was the partner's "belongings." The experimenter told the participant that he or she must have stepped out and to sit down and wait. Thirty seconds later, the experimenter returned, stating that he or she could not find the partner and to fill out

a brief "memory test" about the substance abused by his or her partner. After completing the memory test, a mark was made where the participant sat and the participant was debriefed and released. Attitudes predicted where participants sat better when participants were partnered with a matching subtype substance abuser than a mismatching subtype substance abuser or no subtype substance abuser at all.

Another behavior, presumably with consequences for the target, involves speaker ratings. Lord et al. (1991, Experiment 1) examined typicality effects by having participants rate a guest speaker who was either a typical or atypical member of a group. The experimenter led participants through 42 training trials in which participants were shown pictures of women, and after each one, guessed whether or not she was a member of a fictitious group and then learned about the target's attitudes towards capital punishment and legalized abortion. To induce positive or negative attitudes towards the group, the target's attitudes were similar or dissimilar to the participants.

After completing this task, the experimenter told the participants the purpose of the task was merely to introduce participants to a member of the group. Participants were told that this person had to give a talk as part of an independent study course and they would be grading her on her talk, which would be incorporated into her final grade. The speaker gave her talk to one group of participants wearing her natural hairstyle, which was a poor, but not impossible fit to the prototypic group member's, and again to another group of participants wearing a "prototype wig" characteristic of members of the group. Participants rated the speaker's enunciation, flow of sentences, overall quality of voice, poise and posture, gestures and mannerisms, organization of speech, knowledge of the material, ability to make the audience understand, and how well she answered questions. Participants who were skilled at

discriminating between members and nonmembers were not affected by typicality of physical appearance as much as participants who were not skilled at discriminating between members and nonmembers. Skilled participants also displayed greater attitude-behavior consistency.

Present Study

To increase confidence that false or unlikely memories of previous evaluative responses inform subsequent evaluative responses, it would be necessary to show that implanted memories alter what people do, and not just what they say. In addition, it would be preferable to use an unobtrusive behavioral measure, to minimize the possibility that participants might be aware that their behavior was being assessed, and thus make it unlikely that they might alter their behavior to appear consistent with claiming to have "remembered" taking the hypothetical actions. The goal of the present experiment, then, was to implant false or unlikely memories, measure their effects on something that participants do without being aware of any connection with the memories, and show that the implanted memories affect an unobtrusive actual behavior, especially for participants who "remember" taking one or more evaluative actions that they had previously denied.

*Method*

In the context of an experiment on script writing, participants wrote four hypothetical scenarios where they acted positively towards either a gay man (men) or a former mental patient(s). Of these four hypothetical scenarios, one was a true action that they had previously admitted to taking, and the remaining three were actions they had denied ever taking towards the selected group. One week later, participants returned and sat on a bench where the belongings of either a gay man or former mental patient were placed and rated a

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video of a student giving a speech. Attitude scales and actions lists were then administered to the participants.

*Participants*

One hundred nineteen undergraduates participated for course credit.  Six participants were not included in analyses because they did not follow directions, thus 113 participants (29 males and 86 females) were included in analyses.

*Procedure*

As part of a large questionnaire given early in the semester, participants reported their attitudes towards eight social groups, including politicians, obese people, gay men, fraternity members, sorority members, former mental patients, former substance abusers and professors, using 15-point Likert scales labeled from -7 (*very favorable*) through 0 (*neutral)* to 7 (*very unfavorable*) (Appendix A). The students also circled the actions they had ever taken towards members of each of these groups from a list of 67 positive and negative actions (Appendix B). Instructions written in bold type asked participants to check their list and make sure that they did not leave out any actions they had previously taken towards the target group (McIntyre et al., 2003). Participants also completed the Marlow-Crowne Social Desirability Scale (Crowne & Marlow, 1960) (Appendix C) to test for possible experimenter demand and the Vividness of Visual Imagery Questionnaire (Marks, 1973) (Appendix D) to measure the ease and vividness of participants' imagery ability.

*Session 1.* At least one week later, the same students participated in an "unrelated" experiment that was said to concern script writing. Some of the participants (N=64) were asked to compose four hypothetical scenarios which involved acting in a positive manner towards gay men, and others (N=49) were asked to compose four hypothetical scenarios

which involved acting in a positive manner towards former mental patients. Following

Johnson and Raye's (1981) procedure to generate confusion of whether the event actually

happened, the participants were instructed to write the scenarios in the first person, include

many details, and include specific accounts of the internal thoughts and feelings they

imagined while writing the scenarios (Appendix E). The third scenario was one of the actions

that they had circled to be a "true" action, and the remaining three scenarios were "false"

actions that they did not circle during the earlier questionnaire. In other words, three of the

scenarios were about actions that they had earlier denied they had ever taken toward gay men

(McIntyre et al., 2003).

*Session 2.* Participants returned individually one week later for Session 2 (See

Appendix F for Experimenter Script). The experimenter met the participants outside the lab

room and told them the experimenter was setting things up so they would get them started

outside. The experimenter told the participants that they would watch a film containing a

student giving a speech, which they would rate, and they had been partnered with another

student who had been in a different group than theirs during Session 1. The participants were

told that the study had three conditions, one where each partner knew background

information about the other, one where neither partner knew anything about the other, and

one where only one partner knew information about the other. All participants were told they

were in the third condition and that they would know information about their partner, but

their partner would not know anything about them, not even their name. The experimenter

then gave them a handwritten demographic questionnaire supposedly given to the partner

during Session 1 to take home and complete and bring to Session 2. The participants were

asked to read it while the experimenter finished setting things up.

Manipulation of Partner and Speaker Identities

Some of the students (N=59) were given a demographic questionnaire with a partner named Greg, who was gay (Appendix G), and others (N=54) were given a demographic questionnaire with a partner named Mark who was a former mental patient (Appendix H). The demographic questionnaire was adapted from one used by Ten Eyck (2003) in a similar seating procedure. The experimenter told the participants that for ethical reasons, his or her partner knew that he or she was going to read the information, because some contained personal information. The experimenter also told the participants that they would take the partner back into the lab to complete some paperwork and then bring the partner back in after he/she was in the room because it seemed to make things more comfortable for both participants.

Seating Distance Measure

The experimenter returned a few minutes later and led the participant into the room with a bench in the middle of the room facing a television. A clipboard was placed on the end of the bench, 15 centimeters from the edge, and a bag was lying below. For each participant, the experimenter walked to approximately the same spot in front of the bench and nonchalantly said "There's Greg/Mark's things. Just have a seat on the bench facing the TV." The experimenter then walked to the experimenter's desk located behind the bench and pretended to be looking through paperwork and noted how close to the partner's belongings the participant sat, which was measured by the outer edge of the participant's left thigh, which was closest to the partner's belongings. The measurement was facilitated by marks along a scale in the wood under the bench top, which were visible to the experimenter sitting at her desk, but not to anyone standing up or sitting on the bench.

Speaker Impression Measure

After a few minutes, the experimenter handed the participant another completed demographic questionnaire, that of the student in the video they would be watching. Those participants who received the sheet with Greg as their partner were given a questionnaire stating that the speaker was named Mark (the former mental patient; see Appendix I) (N=54), and those who received Mark as their partner were given a questionnaire stating that the speaker was named Greg (the gay man; see Appendix J) (N=59). The questionnaires were almost identical to the partner questionnaires, except the major was communications for the speaker instead of psychology, the partner's major. The experimenter then left the room to retrieve the partner, but returned a few minutes later stating that Greg/Mark was not in the lab and must have gone to the restroom and they had left a note for the partner to come back into the room when they returned. However, after a few minutes, the experimenter informed the participant that due to time restraints, they would have to continue without the partner and if Greg/Mark returned soon, he could join.

Attitude and Action Changes

The participant was told that the speaker they were rating was a speech communications major who was taking an independent studies class, and as part of his grade, his professor wanted to get outside raters to rate his speaking abilities. The experimenter then handed the participant a rating sheet to rate the speaker using 11 point Likert scales measuring the speaker's enunciation, flow of sentences, overall quality of voice, poise and posture, gestures and mannerisms, organization of speech, knowledge of the material, and ability to make the audience understand (Appendix K). The student then watched a short,

two-minute video of the speaker giving a speech about leadership and completed the rating sheet.

The participant then completed attitude scales similar to the ones completed during the earlier questionnaire (see Appendix L), in which they reported their attitudes towards eight social groups consisting of politicians, obese people, gay men, fraternity members, sorority members, former mental patients, former substance abusers and professors, using 11-point Likert scales labeled from -5 (*very negative*) through 0 (*neutral)* to 5 (*very positive*) (Appendix K). The students completed the same action lists from the earlier questionnaire (Appendix B). The experimenter then removed the action list for the group they wrote about during Session 1 and handed it back to the participant, who was asked to provide a short description of the circumstances when they took each action they had circled (Appendix M).

Upon completion, participants were questioned for suspicions about the experimental hypotheses, debriefed, and given credit for participation.

Results

The present study examined whether attitudes can be altered by memories of past actions, and if such changes occur even when the memories are false or unlikely. Also, these memories should affect not just what people say, but what they do. Participants wrote hypothetical accounts of taking previously denied positive actions toward either gay men or former mental patients. One week later, they chose a seat on a bench with either a gay man or a former mental patient, and rated a speech given by a member of the other category.

*False Memories*

A participant was deemed to have "false memories" if one or more of the three previously denied (not circled during the earlier questionnaire) actions he or she circled the

second time. Table 1 shows the number of false memories for participants who wrote the

hypothetical scenarios about gay men and former mental patients by target group. For

participants who wrote about gay men, 20 had no false memories, 27 had 1 false memory, 9

had 2 false memories and 8 had 3 false memories. For participants who wrote about former

mental patients, 14 had no false memories, 16 had 1 false memory, 13 had 2 false memories

and 6 had 3 false memories.

     The total number of actions circled at Time 2, which were not circled at Time 1 and

were not one of their scenarios were recorded for each participant. This frequency of false

memories for actions not included in the scenarios was divided by the number of actions not

circled at Time 1 and not written about (67 minus the number of actions circled at Time 1

minus the three scenarios they wrote about), to create an overall percentage of false

memories not included in the scenarios for each participant. The average percent of false

memories not included in the manipulation for all participants was 11.00% ($SD$=10.00) with

a range of .00 - .46, and a median of .09. An independent samples $t$ test between those who

wrote the gay men essay and those who wrote the former mental patient essay on false

memory inaccuracy scores was not significant, $t$ (111) = .015, ns. Based on these results,

participants as a whole did not inaccurately misremember a large number of actions.

     The percentages of circled actions not included in the manipulation, and not circled at

Time 1, were then compared with the percentage of actions circled included in the

manipulation. The percentages and standard deviations of actions not included in the

manipulation and actions included in the manipulation circled at Time 2 but not Time 1 are

shown in Table 2. Participants circled more of the previously uncircled actions that had been

included in the actions lists not included in their scenarios (M=38.05) than actions not included in their scenarios (M=11.36), $F$ (1,111) = 69.51, $p < .01$.

Comparisons were then run independently for participants who wrote hypothetical scenarios about gay men or former mental patients. This difference was significant for participants who wrote about gay men ($M$s = 36.00 vs. 11.00), $F$ (1,63) = 34.69, $p < .01$, and for participants who wrote about former mental patients ($M$s = 41.00 vs. 11.00), $F$ (1,48) = 34.57, $p < .01$. These results indicate that participants were not merely circling random actions, but more specifically, those actions about which they wrote the hypothetical scenarios.

*Seating Distance*

The experimental design was that participants wrote about taking actions towards either gay men or former mental patients and then had the opportunity to sit on a bench with either a gay man or a former mental patient. The postulated mechanism was that participants would misremembered having taken the positive actions that they wrote about and because they misremember taking those actions, they would have more positive attitudes toward that group and those more positive attitudes would be shown behaviorally by sitting closer to the target person. In McIntyre et al.'s (2003) results, the false memory mechanism was supported because their participants only changed their attitude towards gay men if they misremembered doing one or more of the previously uncircled actions they wrote about. To see whether the same mechanism was at work, participants were divided into those who had no false memories (N=34, see Table 1) and participants who had at least one false memory (N=79, see Table 1). The main analyses therefore involved a 2 (Essay Target: Gay Man, Former Mental Patient) X 2 (Seat Target: Gay Man, Former Mental Patient) X 2 (False

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Memories: Absent, Present) analysis of variance (ANOVA) of how far (in centimeters) participants sat from the edge of the clipboard that marked where the target person was sitting. That analysis yielded a 3-way interaction between essay target by seating target by the presence versus absence of false memories, $F(1, 105) = 4.13$, $p < .05$ (Appendix N).

Figure 1 shows the mean distance (in centimeters), participants sat away from the edge of the target's clipboard by essay target and whether participants had one or more false memories. Participants who had one or more false memories as shown on the right side of the figure, sat closer to a target who matched the type of person they had earlier imagined treating positively, simple Essay X Target interaction, $F(1,75) = 12.75$, $p < .01$. No such interaction occurred for participants who had no false memories, $F(1, 30) = .002$, ns.

A question of interest is whether the essay target by seating interaction was more pronounced the more false memories a participant had. To check on that possibility, a regression analysis was conducted to try to predict seating distance from essay target (dummy coded as 0 [Former Mental Patient] or 1 [Gay Man]), seating target (dummy coded as 0 or 1) and the number of false memories reported (0, 1, 2, 3). The regression analysis predicting seating distance by essay target and seat target using false memories as a continuous variable was not significant. From the 3-way ANOVA we know that the essay target by seating target manipulation worked better for participants who had at least one false memory. However, an increase in false memories does not seem to increase the effect of the manipulation.

Another question regarding the manipulation is whether the manipulation worked better for people with high vivid imagery. To answer that question essay target (dummy coded as 0 or 1), seating target (dummy coded as 0 or 1), and score on the Vividness of

Mental Imagery Scale (Marks, 1973) were used in a regression analysis to predict seating distance and yielded no significant effect. The 3-way interaction with vividness of mental imagery as a continuous variable was not significant. Figure 2 shows the mean distance (in cm) that participants sat from the edge of the target's clipboard by essay target and seat target by high or low vividness scores.

Another question was whether the manipulation was affected by experimenter demand. To answer this question, another regression analysis was run using essay target (dummy coded as 0 or 1), seating target (dummy coded as 0 or 1), and score on the Marlow-Crowne Social Desirability Scale (Crowne & Marlow, 1960) to predict seating distance (Appendix Q). The 3-way interaction with social desirability was not significant. Figure 3 shows the mean distance (in cm) that participants sat from the edge of the target's clipboard by essay target and seat target by high or low social desirability scores.

*Attitude Change*

The attitude scales used in the earlier questionnaire and present experiment were different, so participants' scores were converted to T-scores, with mean equal to 50 and standard deviation equal to 10. To measure attitude change, the post-manipulation T-scores were subtracted from the pre-manipulation T-scores. These attitude change scores were analyzed in a 2 (Essay Target: Gay Man, Former Mental Patient) X 2 (Attitude Target: Gay Man, Former Mental Patient) X 2 (False Memories: Absent, Present) ANOVA. Contrary to the findings for seating distance, this analysis found no significant 3-way interaction, $F(1, 108) = .339$, *ns* (Appendix R). There was, however, a marginally significant 2-way interaction between essay target and attitude target, $F(1, 108) = 3.08$, $p = .082$. Participants adopted more positive attitudes towards whichever type of target they had imagined treating

positively, but writing about positive actions had a positive effect on attitudes regardless

whether participants displayed false memories. The mean attitude change by essay target for

participants who had one or more false memories or no false memories is shown in Figure 4.

Participants who had no false memories experienced a decrease in attitudes towards gay men

and former mental patients and participants who had one or more false memories

experienced an increase in attitudes towards gay men and former mental patients for all the

conditions except those who wrote hypothetical scenarios about former mental patients and

reported attitudes towards former mental patients, as illustrated in the bars to the right of each

graph.

*Intercorrelations*

To examine relationships between attitudes at Time 1, attitudes at Time 2, attitude

change towards gay men (using actual scores instead of T scores), distance sat away from the

target (in cm), total false memories, social desirability, and vividness, bivariate correlations

were run for each of the four groups. Appendix U shows the correlation matrix for

participants who wrote about gay men and had a gay partner. The main association of

interest, distance sat away from the target and total false memories, yielded a strong negative

correlation, $r = -.44$, $p <.01$. For participants who wrote positive hypothetical scenarios about

gay men and also had a gay partner, the more false memories they reported, the closer they

sat to the target's belongings. The results also show a significant correlation between

attitudes towards gay men at Time 2 and social desirability scores, $r = .39$, $p < .05$. Appendix

U also shows that attitudes towards gay men at Time 1 and Time 2 were highly correlated ($r$

$= .81$, $p < .001$). Participants with more positive attitudes towards gay men at Time 1 had

more positive attitudes towards gay men at Time 2. There was also a highly negative

correlation between attitudes towards gay men at Time 1 and attitude change scores ($r = -.80$, $p < .001$). Participants with more positive initial attitudes towards gay men experienced less attitude change than participants with more negative initial attitudes towards gay men.

Similar associations between attitudes towards gay men at Time 1 and Time 2 and attitudes towards gay men at Time 1 and attitude change towards gay men were also found for the three remaining groups. Gay men attitudes at Time 1 and Time 2 were highly correlated, $r = .71$, $p < .001$, and gay men attitudes at Time 1 and attitude change were highly negatively correlated for participants who wrote about gay men and who's partner was a former mental patient, $r = -.77$, $p < .001$ (Appendix V), for participants who wrote about former mental patients and had a former mental patient partner ($r = .81$, $p < .001$ and $r = -.76$, $p < .001$, respectively) (Appendix W), and for participants who wrote about former mental patients and who had a gay partner ($r = .72$, $p < .001$ and $r = -.77$, $p < .001$, respectively) (Appendix X). For all conditions, participants who had more positive initial attitudes had more positive attitudes at Time 2, and participants with more positive initial attitudes experienced less attitude change.

*Speaker Ratings*

Participants rated the speaker on five scales (see Appendix K). A principal components analysis showed that these ratings loaded on one factor, which accounted for 54.95 percent of the variance. Consequently, the five rating scores were averaged and these average ratings were subjected to 2 (Essay Target: Gay Man, Former Mental Patient) X 2 (Speaker Target: Gay Man, Former Mental Patient) X 2 (False Memories: Present, Absent) ANOVA (Appendix S). Figure 5 shows the mean speaker ratings by essay target and speaker target for participants who had one or more false memories or no false memories. The only

effect of any interest was the 3-way interaction, $F(1, 105) = 2.62$, $p = .108$. The pattern of means for participants with one or more false memories looked similar to their means for seating distance and attitude change, with higher ratings for whichever target they matched their essays.

## Discussion

As hypothesized, participants who wrote positive hypothetical scenarios sat closer to the target's belongings if the seating target was similar to their essay target. In other words, participants who wrote positive hypothetical scenarios about gay men sat closer to the target's belongings if the target was gay, and participants who wrote positive hypothetical scenarios about former mental patients sat closer to the target's belongings if the target was a former mental patient. These results suggest that past actions, even imaginary ones, can affect not only attitude reports, but also physical behaviors such as sitting.

*Fit With Other Research*

McIntyre et al. (2003) reported a significant interaction between the number of false memories reported and attitude change. The current study failed to find such a significant interaction between the number of false memories and attitude change. A possible explanation for this deviation from McIntyre et al.'s (2003) findings may be due to differences in the experimental designs of each study. McIntyre et al. (2003) had participants write counter attitudinal hypothetical scenarios, whereas in the present study, participants only wrote positive hypothetical scenarios. McIntyre et al. (2003) raised the concern regarding the ease of imagining scenarios with valences and their effect on attitude change. Do participants find imaging one valance over another easier? When McIntyre et al. (2003) included action valence into a three-way ANOVA with target (gay men; other groups) and

total number of false memories, valence did not qualify the two-way interaction between attitude change and total number of false memories they reported. Since participants in the present study only wrote positive hypothetical scenarios, no such interactions can be examined.

*Limitations*

One possible limitation of this study may be that participants may have had the opportunity to perform actions that they previously had not circled during the earlier questionnaire. Students may have also simply forgotten they had performed the actions when they were completing the initial actions lists and remembered then during the second session. In either event, those items they circled at Time 2, but had not previously circled would not actually be considered "false memories." However, considering that participants did not inaccurately misremember a large number of actions, but instead misremembered those actions they wrote about more, it appears that participants were actually misremembering from writing the hypothetical scenarios.

Another limitation may be found within the experimental design of the study. False memories were determined if a participant circled actions that he or she had not circled in the earlier questionnaire. A question of interest is did the behaviors of sitting on a bench near, or rating a speaker who was either a gay man or former mental patient affect participants' responses? Participants may have unconsciously, or even consciously, included these actions they performed within the experiment when circling all the actions they had ever taken towards gay men or former mental patients. Participants may have even related these behaviors to other similar actions. If participants incorporated the behaviors they performed

during the experiment into their circled actions, then some of the "false memories" may have actually become true memories.

Another possible limitation of the study is the sequence of behaviors measured. After being informed they would be interacting with either a gay man or former mental patient partner, and then given the other category as a speaker, participants may have been less susceptible to the second manipulation. This may explain why no significant results were found for the speaker ratings. In future studies, it would be interesting to examine the two behaviors individually, so that one does not have the chance to influence the other.

Experimenter bias may have also influenced the findings of the study. Experimenters may have been aware of the participants' conditions and unconsciously instructed the participants to sit and/or rate the speaker differently depending on their essay targets. This bias is unlikely however, because participants did not report false memories until the end of the study. Thus it is doubtful that the experimenters influenced the participants' seating choice or essay ratings since the experimenters were unaware of the participants' reported false memories.

Participants' interpretation of the target group, former mental patients, may have also influenced the data. During debriefing, several participants expressed uncertainty of the classification of former mental patients. Many participants expressed the extreme stereotype of former mental patients being institutionalized, not as individuals they would interact with regularly. Given the extreme representation of former mental patients used by many participants, participants may not have interpreted the former mental patient speaker as what they thought of as a former mental patient (See Appendix J). The former mental patient seating manipulation may have been too weak to influence participants.

*Future Research*

The current findings and those of McIntyre et al. (2003) have shown that false memories can not only affect reported attitudes, but also physical behaviors such as sitting distance. These findings provide opportunity for future studies to further show how false memories can be used to help improve the behavior component of attitudes. Word, Zanna and Cooper (1974) conducted two experiments in which participants engaged in mock interviews with White and Black job applicants. Although they were unaware of displaying bias, they treated the black interviewer worse in several non-verbal ways. This interesting paradigm has been utilized by many researchers examining a variety of psychological issues. Employing Zanna and Cooper's (1974) model, Hebl and Mannix (2003) found that individuals who appear to have a social relationship with negatively stigmatized people tend to be derogated by others. Plant and Devine (2003) observed high anxiety about interacting with a Black person, but not a White person, was associated with a lowered likelihood to come back for the interaction. McConnell and Leibold (2001) found that scores on the Implicit Association Test (IAT) are associated with explicit measures of prejudice.

Using the mock interview paradigm of Zanna and Cooper (1974), future research might examine the effect of false memories on not only an individual's reported attitudes, but also their nonverbal behaviors towards others. Furthermore, if an individual's attitudes towards a member of a certain group become more positive as a result of falsely remembering positive hypothetical scenarios, then his or her expectations of the group member should also become more positive; and following the findings of Zanna and Cooper (1974), the group member's behaviors should become more positive.

*Conclusions*

Participants who falsely remembered taking the attitude-relevant behaviors they wrote the hypothetical scenarios about sat significantly closer to a matching target's belongings than participants who did not falsely remember taking the attitude-relevant scenarios. This finding illustrates that not only can attitude reports be altered by false or unlikely memories of past behaviors as shown by McIntyre et al. (2003), but also that these false or unlikely memories can also impact physical behaviors.

Table 1

*Number of "False Memories" by Participants Who Wrote Scenarios in Which They Took Positive Actions Toward the Target Group.*

|  | Number of False Memories | | | |
|---|---|---|---|---|
|  | 0 | 1 | 2 | 3 |
| Wrote about a gay man | 20 | 27 | 9 | 8 |
| Wrote about a former mental patient | 14 | 16 | 13 | 6 |

Table 2

*Percentage of Actions Circled at Time 2 Which Were Not Circled At Time 1 by Inclusion or Exclusion in the Manipulation*

| Percentage of Actions Circled Not Included in the Manipulation | Percentage of Actions Circled Included in the Manipulation |
|---|---|
| 11.36 | 38.05 |
| (10.00) | (33.00) |

Note: Standard deviations are in parentheses.

Figure 1

*Mean Distance (in cm) That Participants Sat From the Edge of the Target Person's*

*Clipboard by Essay Target and Seat Target by Absence or Presence of False Memories.*
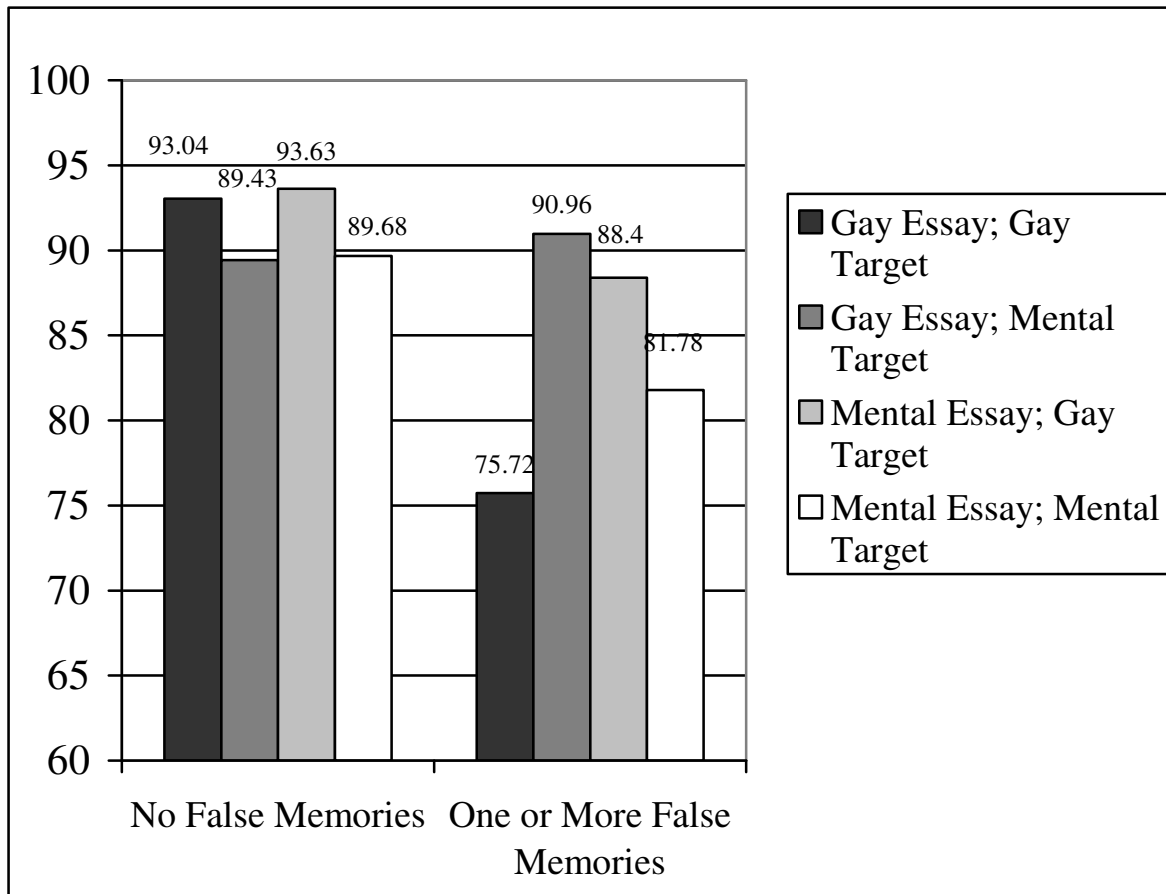
Figure 2

*Mean Distance (in cm) That Participants Sat From the Edge of the Target Person's*

*Clipboard by Essay Target and Seat Target by High or Low Vividness Scores.*
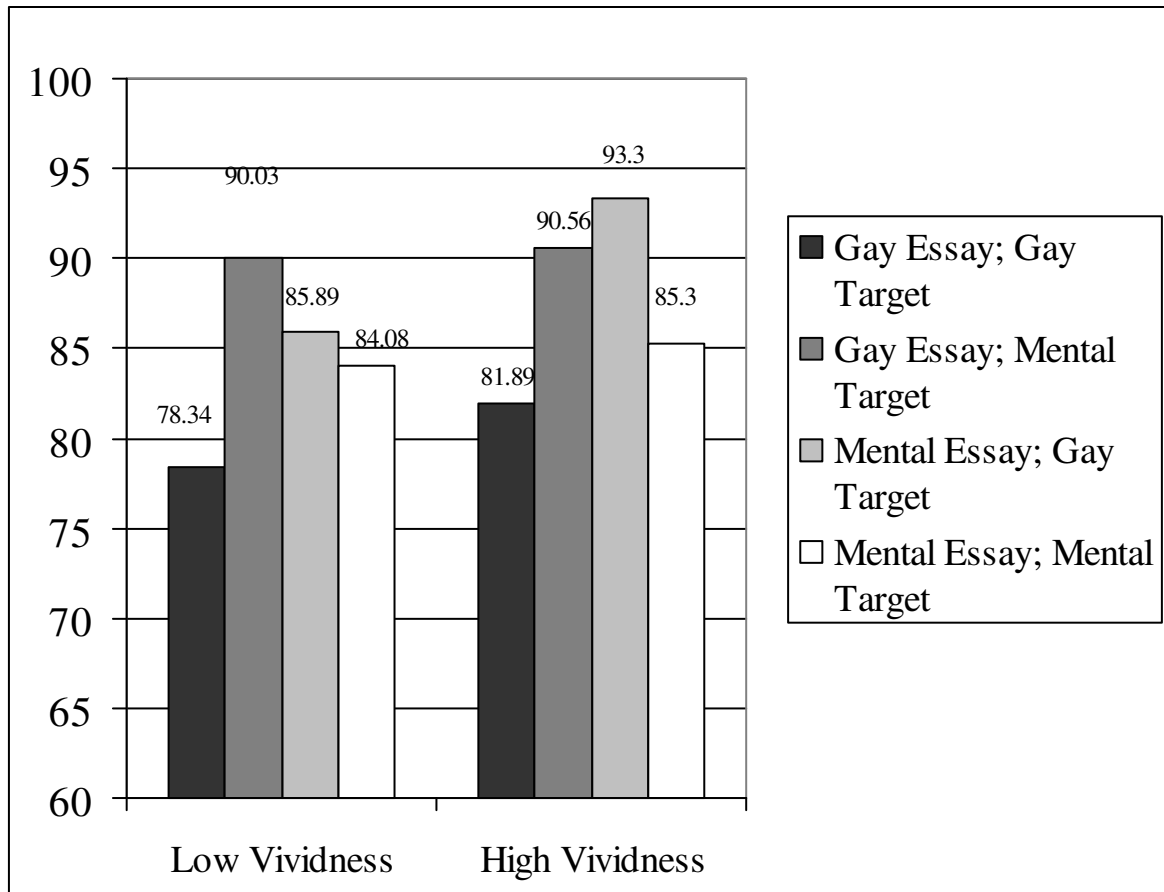
Figure 3

*Mean Distance (in cm) That Participants Sat From the Edge of the Target Person's*

*Clipboard by Essay Target and Seat Target by High or Low Social Desirability Scores.*
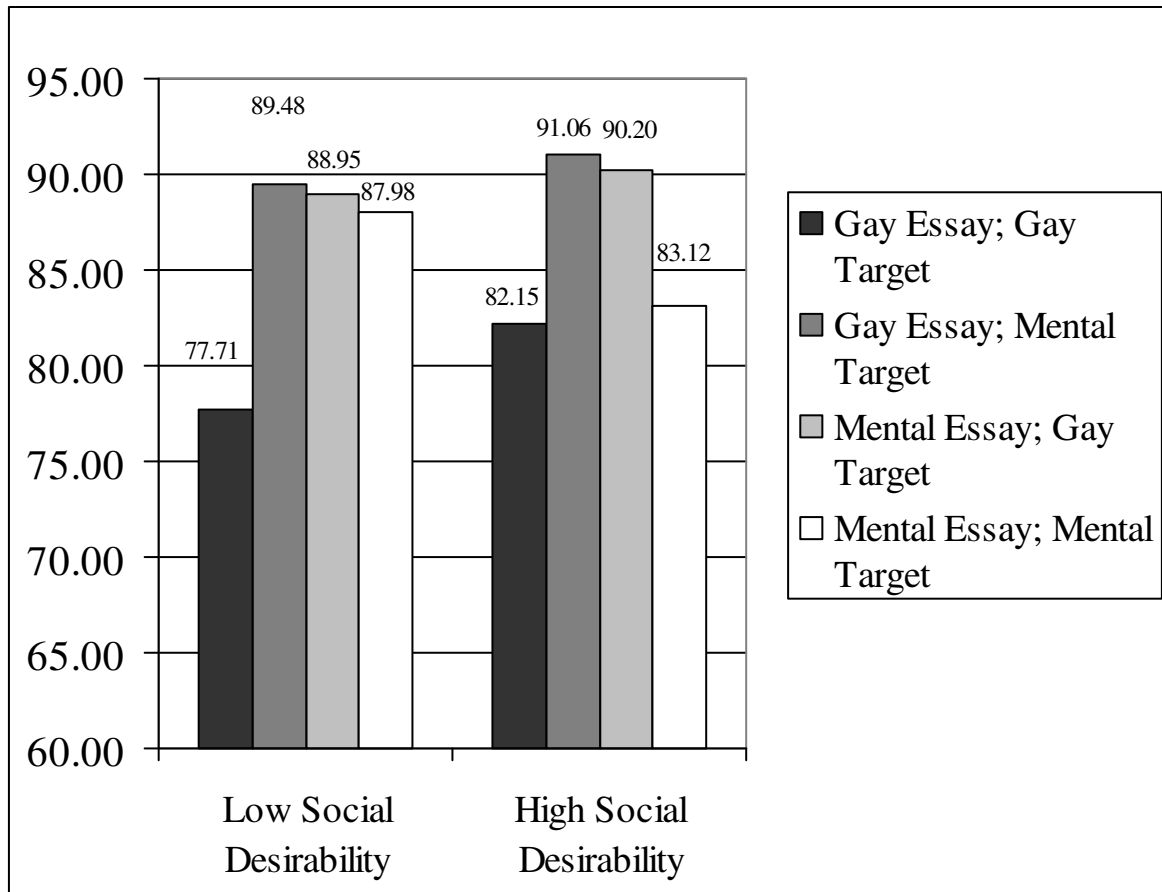
Figure 4

*Mean Attitude Change by Essay Target and Attitude Target for Participants by Absence vs.*

*Presence of False Memories.*
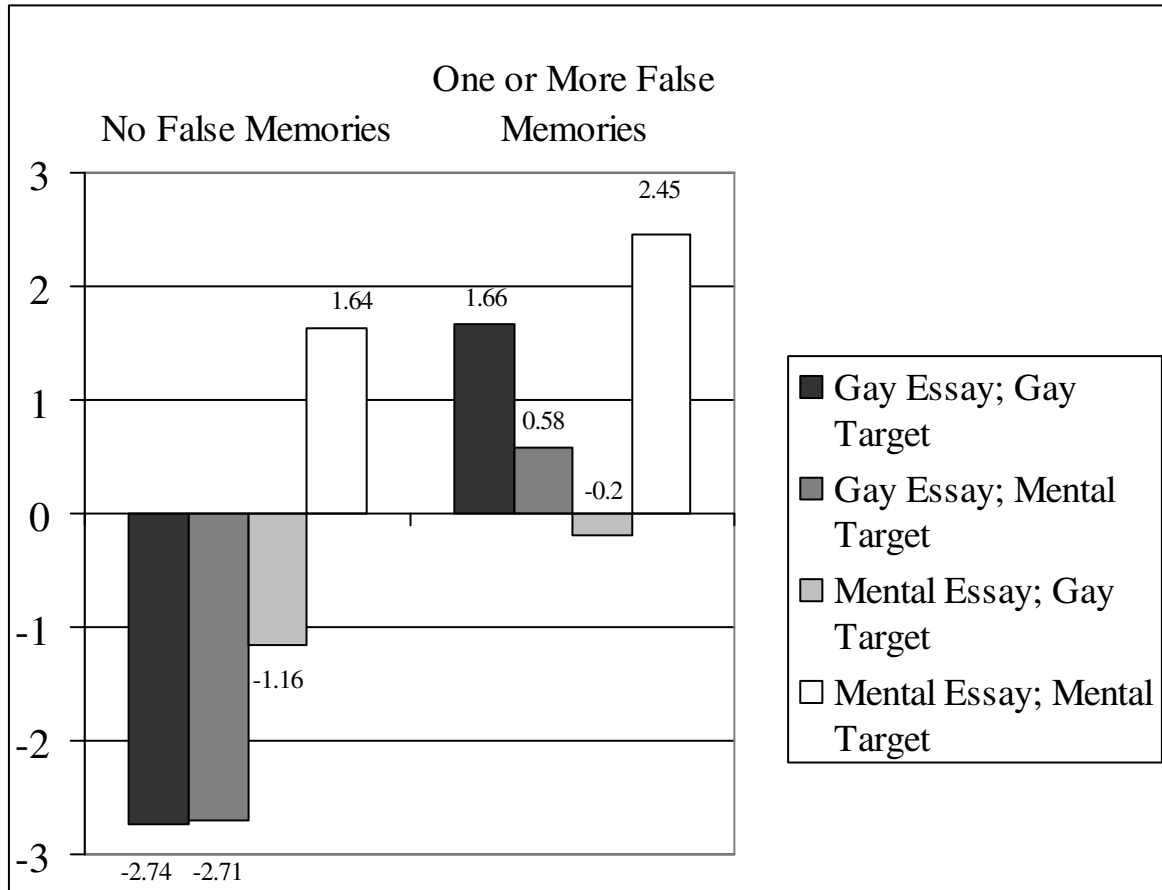
Figure 5

*Mean Speaker Ratings by Essay Target and Speaker Target by Absence or Presence of False*
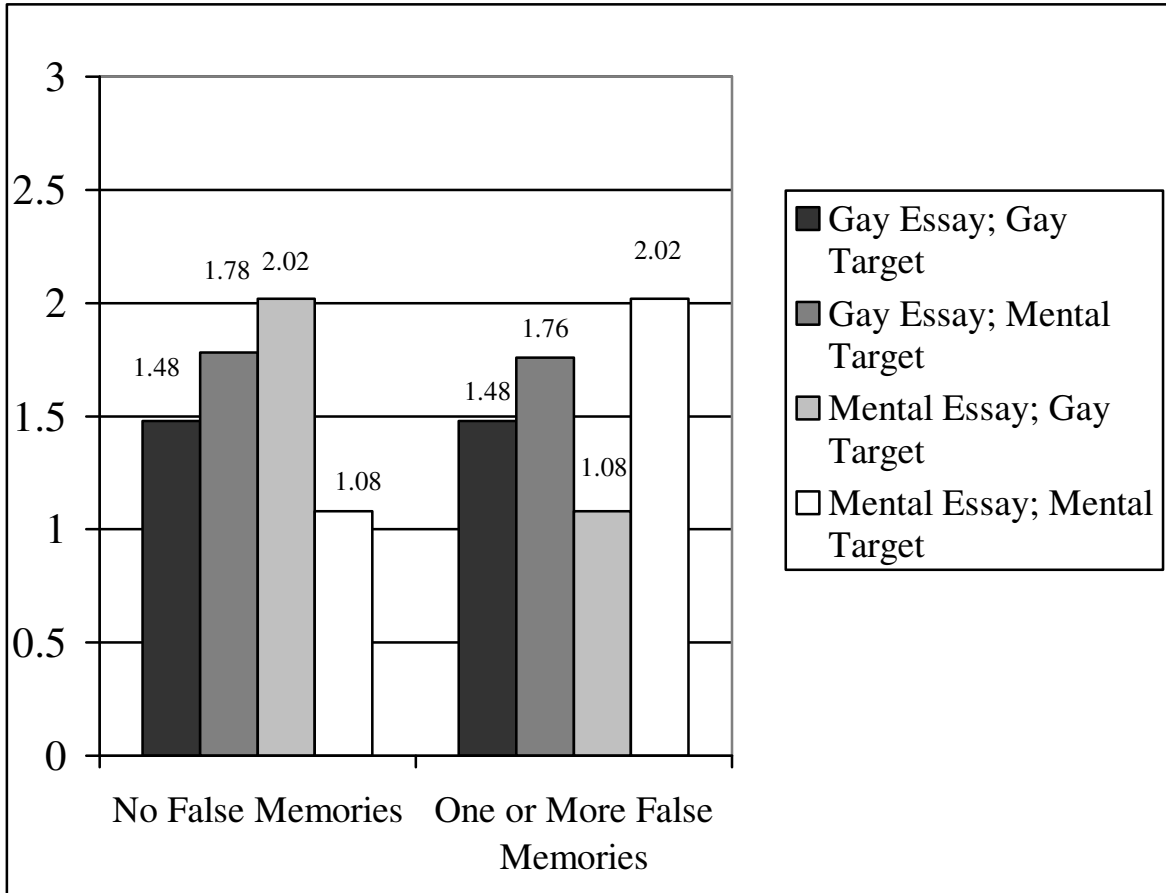
*Memories.*

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Appendix A

Attitude Questionnaire

*Please circle your answer.*

What is your attitude toward politicians?

| -7 | -6 | -5 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----|----|----|----|----|----|----|---|---|---|---|---|---|---|---|
| | very | | | | | | Neutral | | | | | | very | |
| | unfavorable | | | | | | | | | | | | favorable | |

What is your attitude toward professors?

| -7 | -6 | -5 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----|----|----|----|----|----|----|---|---|---|---|---|---|---|---|
| | very | | | | | | Neutral | | | | | | very | |
| | unfavorable | | | | | | | | | | | | favorable | |

What is your attitude toward gay men?

| -7 | -6 | -5 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----|----|----|----|----|----|----|---|---|---|---|---|---|---|---|
| | very | | | | | | Neutral | | | | | | very | |
| | unfavorable | | | | | | | | | | | | favorable | |

What is your attitude toward former mental patients?

| -7 | -6 | -5 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----|----|----|----|----|----|----|---|---|---|---|---|---|---|---|
| | very | | | | | | Neutral | | | | | | very | |
| | unfavorable | | | | | | | | | | | | favorable | |

What is your attitude toward lesbians?

| -7 | -6 | -5 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----|----|----|----|----|----|----|---|---|---|---|---|---|---|---|
| | very | | | | | | Neutral | | | | | | very | |
| | unfavorable | | | | | | | | | | | | favorable | |

What is your attitude toward journalists?

| -7 | -6 | -5 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----|----|----|----|----|----|----|---|---|---|---|---|---|---|---|
| | very | | | | | | Neutral | | | | | | very | |
| | unfavorable | | | | | | | | | | | | favorable | |

What is your attitude towards exercising?

| -7 | -6 | -5 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----|----|----|----|----|----|----|---|---|---|---|---|---|---|---|
| | very | | | | | | Neutral | | | | | | very | |
| | unfavorable | | | | | | | | | | | | favorable | |

What is your attitude toward lawyers?

| -7 | -6 | -5 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----|----|----|----|----|----|----|---|---|---|---|---|---|---|---|
| | very | | | | | | Neutral | | | | | | very | |
| | unfavorable | | | | | | | | | | | | favorable | |

## Appendix A

What is your attitude toward newscasters?

| -7 | -6 | -5 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----|----|----|----|----|----|----|---|---|---|---|---|---|---|---|
| | very<br>unfavorable | | | | | | Neutral | | | | | | very<br>favorable | |

What is your attitude toward professional athletes?

| -7 | -6 | -5 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----|----|----|----|----|----|----|---|---|---|---|---|---|---|---|
| | very<br>unfavorable | | | | | | Neutral | | | | | | very<br>favorable | |

What is your attitude toward studying?

| -7 | -6 | -5 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----|----|----|----|----|----|----|---|---|---|---|---|---|---|---|
| | very<br>unfavorable | | | | | | Neutral | | | | | | very<br>favorable | |

Appendix B

Actions Taken

Please circle each action that you have ever taken toward a gay man or gay men.

| | |
|---|---|
| Abuse | move away from |
| argue with | not imitate |
| attack physically | ostracize |
| attend meetings for | praise |
| avoid being seen with | promote cause |
| avoid helping | put down ideas |
| avoid talking to | raise money for |
| be cautious around | show sympathy for |
| be cheerful toward | refuse support to |
| be courteous to | spend time with |
| be friends with | stay away from |
| be helpful to | take political action |
| against | take political action for |
| be impolite to | |
| be kind to | talk against |
| boycott | talk to |
| cause trouble for | threaten |
| confide in | touch |
| criticize | treat differently |
| date | treat the same as others |
| defend | treat with respect |
| discriminate against | try to exclude |
| donate time to help | try to meet |
| donate money to, etc. | tune out |
| eat or drink with | voice agreement with |
| educate others about | work with |
| express understanding | make eye contact |
| fight with | look away from |
| get to know | make feel comfortable |
| give special treatment | |
| go in public with | |
| harass | |
| hug | |
| hurt emotionally | |
| ignore | **When you finish, go back over the** |
| imitate | **list until you are sure that you** |
| introduce to friends/parents | **haven't left out even one action** |
| learn about | **that you took toward a gay man** |
| learn from | **at any time in the past** |

Appendix C

The Marlowe-Crowne Social Desirability Scale

Listed below are a number of statements concerning personal attitudes and traits. Read each item and decide whether the statement is *true or false* as it pertains to you personally. *Please answer with a T or F in the space provided.*

_____ 1. Before voting I thoroughly investigate the qualifications of all the candidates.

_____ 2. I never hesitate to go out of my way to help someone in trouble.

_____ 3. It is sometimes had for me to go on with my work if I am not encouraged.

_____ 4. I have never intensely disliked anyone.

_____ 5. On occasion I have had doubts about my ability to succeed in life.

_____ 6. I sometimes feel resentful when I don't get my way.

_____ 7. I am always careful about my manner of dress.

_____ 8. My table manners at home are as good as when I eat out in a restaurant.

_____ 9. If I could get into a movie without paying and be sure I was not seen I would

probably do it.

_____ 10. On a few occasions, I have given up doing something because I thought too little of

my ability.

_____ 11. I like to gossip at times.

_____ 12. There have been times when I felt like rebelling against people in authority even

though I knew they were right.

_____ 13. No matter who I'm talking to, I'm always a good listener.

_____ 14. I can remember "playing sick" to get out of something.

_____ 15. There have been occasions when I took advantage of someone.

_____ 16. I'm always willing to admit it when I make a mistake.

_____ 17. I always try to practice what I preach.

_____ 18. I don't find it particularly difficult to get along with loud mouthed, obnoxious

people.

_____ 19. I sometimes try to get even rather than forgive and forget.

_____ 20. When I don't know something I don't at all mind admitting it.

_____ 21. I am always courteous, even to people who are disagreeable.

_____ 22. At time I have really insisted on having things my own way.

_____ 23. There have been occasions when I felt like smashing things.

_____ 24. I would never think of letting someone else be punished for my wrongdoings.

_____ 25. I never resented being asked to return a favor.

_____ 26. I have never been irked when people expressed ideas very different from my own.

_____ 27. I never make a long trip without checking the safety of my car.

_____ 28. there have been times when I was quite jealous of the good fortune of others.

_____ 29. I have almost never felt the urge to tell someone off.

_____ 30. I am sometimes irritated by people who ask favors of me.

_____ 31. I have never felt that I was punished without cause.

_____ 32. I sometimes think when people have a misfortune they only got what they deserved.

_____ 33. I have never deliberately said something that hurt someone's feelings.

Appendix D

Vividness of Visual Imagery Questionnaire

We are studying people's visual imagery ability, or how well they can imagine things or events. Listed below are several items which may bring certain images to your mind. You will be rating the vividness of each image using the 5-point scale provided below. For example, if your image is "clear and reasonably vivid" give it a rating of 2 in the space provided to the left. Try to do each item separately, independent of how you may have done other items. **Keep your eyes open while imagining the item.**

Before beginning the task, please read the rating scale below.

| Rating | Description |
|--------|-------------|
| 1 | Perfectly clear and as vivid as normal vision |
| 2 | Clear and reasonably vivid |
| 3 | Moderately clear and vivid |
| 4 | Vague and dim |
| 5 | No image at all, you only "know" that you are thinking of an object |

Now that you have familiarized yourself with the rating scale, please begin the task and feel free to refer back to the scale if needed when judging the vividness of your images.

**REMEMBER: KEEP YOUR EYES <u>OPEN</u> WHILE COMPLETING THIS TASK!**

**REMEMBER TO PLEASE KEEP YOUR EYES <u>OPEN</u>.**
*In answering items 1 to 4, think of some relative or friend whom you frequently see (but who is not with you at present) and consider carefully the picture that comes before your mind's eye.*

\_\_\_\_ 1. The exact contour of face, head, shoulders and body.

\_\_\_\_ 2. Characteristic poses of head, attitudes of body etc.

\_\_\_\_ 3. The precise carriage, length of step, etc. in walking.

\_\_\_\_ 4. The different colors worn in some familiar clothes.


*Visualize the rising sun. Consider carefully the picture that comes before your mind's eye.*

\_\_\_\_ 5. The sun is rising above the horizon into a hazy sky

\_\_\_\_ 6. The sky clears and surrounds the sun with blueness

\_\_\_\_ 7. Clouds. A storm blows up, with flashes of lightening

\_\_\_\_ 8. A rainbow appears


*Think of the front of a shop which you often go to. Consider the picture that comes before your mind's eye.*

\_\_\_\_ 9. The overall appearance of the shop from the opposite side of the road

\_\_\_\_ 10. A window display including colors, shape and details of individual items for sale.

\_\_\_\_ 11. You are near the entrance. The color, shape and details of the door.

\_\_\_\_ 12. You enter the shop and go to the counter. The counter assistant serves you. Money

changes hands.


*Finally, think of a country scene which involves trees, mountains and a lake. Consider the picture that comes before your mind's eye.*

\_\_\_\_ 13. The contours of the landscape

\_\_\_\_ 14. The color and shape of the trees

\_\_\_\_ 15. The color and shape of the lake

\_\_\_\_ 16. A strong wind blows on the tree and on the lake causing waves

Now we would like you to complete the imagery task again, but this time **keep you eyes closed** while imagining the item. Please try and keep your "eyes closed" rating and "eyes open" ratings separate from one another. Do not refer back to your previous ratings for this task. Please rate the items this time based only upon your images with your eyes closed.

Below is the same rating scale you used in the previous task. Please feel free to refer back to this scale if needed when judging the vividness of your images.

| Rating | Description |
|--------|-------------|
| 1 | Perfectly clear and as vivid as normal vision |
| 2 | Clear and reasonably vivid |
| 3 | Moderately clear and vivid |
| 4 | Vague and dim |
| 5 | No image at all, you only "know" that you are thinking of an object |

**REMEMBER: KEEP YOUR EYES <u>CLOSED</u> WHILE COMPLETING THIS TASK!**

**REMEMBER TO PLEASE KEEP YOUR EYES <u>CLOSED</u>.**
*In answering items 1 to 4, think of some relative or friend whom you frequently see (but who is not with you at present) and consider carefully the picture that comes before your mind's eye.*

_____ 1. The exact contour of face, head, shoulders and body.

_____ 2. Characteristic poses of head, attitudes of body etc.

_____ 3. The precise carriage, length of step, etc. in walking.

_____ 4. The different colors worn in some familiar clothes.

*Visualize the rising sun. Consider carefully the picture that comes before your mind's eye.*

_____ 5. The sun is rising above the horizon into a hazy sky

_____ 6. The sky clears and surrounds the sun with blueness

_____ 7. Clouds. A storm blows up, with flashes of lightening

_____ 8. A rainbow appears

*Think of the front of a shop which you often go to. Consider the picture that comes before your mind's eye.*

_____ 9. The overall appearance of the shop from the opposite side of the road

_____ 10. A window display including colors, shape and details of individual items for sale.

_____ 11. You are near the entrance. The color, shape and details of the door.

_____ 12. You enter the shop and go to the counter. The counter assistant serves you. Money

changes hands.

*Finally, think of a country scene which involves trees, mountains and a lake. Consider the picture that comes before your mind's eye.*

_____ 13. The contours of the landscape

_____ 14. The color and shape of the trees

_____ 15. The color and shape of the lake

_____ 16. A strong wind blows on the tree and on the lake causing waves

Appendix E

False Memory Scenarios Instructions

We are studying the art of script writing. Script writers describe scenes for movies, television shows, and plays. They can write about an imaginary scene as though it were really happening. They can make the reader experience exactly what it is like to be a character in the scene. We want you to write a few really great narrated scripts, in which you describe fictitious events as though they really happened. Some participants are in the condition where they describe the events in the third person, as in "He (or she) did this, then he (or she) did that, then the other person said this, and he (or she) said that…" You are in the **FIRST PERSON** condition. For each of the following events, we want you to invent a scenario and describe what happened with yourself as the main character, as in "I did this, then I did that, then the other person said this, and I said that…." Use your imagination and use very specific details. Make the event seem as real and vivid as possible. Tell the reader what the circumstances were that led up to the event, where you were, who else was there, what you heard, said, any thoughts or feelings you had while doing it, or whatever. Describe in detail what other people said or did, and so on. Do the best you can to produce a compelling, believable first-person narrative for each of the following scenes. You may use the back of the page if you need more room.

Scene 1: You got to know a gay man.                    (Experimental Condition)

Scene 1: You got to know a former mental patient.            (Control Condition)

Appendix F

*Session 2 Experimenter Script*

- Go out to participant sitting in the hall (since it's running long, try to go outside 1 or 2 min before or right before you debrief the previous participant if running late). Say outside the door (not too loud, especially if previous participant is still inside because they can hear you!):
  o *Make sure your phones/pagers are off before you come in.*
  o *Last week we had you write some scripts.*
  o *This week we're going to have you & another participant rate a speaker that you'll watch on a video.*
  o *There are different conditions in this experiment, you may have learned about this in psych class.*
  o *In the experiment today, you are in a condition where you get to know a little about the other participant, & both of you will get to know about the speaker.*
  o *The reason why we want some participants to know something about the other participants is because we are interested in comparing the ratings of the speaker in different conditions.*
- Hand them their "partner's" bio sheet—the first bio sheet as indicated next to their name on the sign up sheet from last week (Greg=gay, Mark=mental). Have them read it while waiting outside. Say:
  o *We are still setting things up, so go ahead and read this while you wait.*
- Approx 30sec later or as soon as you finish with the previous experimenter, bring the participant in & take the bio sheet back.
  o *Say Greg/Mark stepped out to run to the restroom & will be right back & have a seat on the bench.*
  o *We also had the speaker fill out a background sheet for you to read.*
- During this go to the desk and note where they are sitting if possible without being obvious (if they are looking at you wait till they aren't or till you return & they are watching the video). Measure using the marks on the bench.
  o Counting from the right side of the bench, note where the outermost point of their left hip is—write it next to their name on the sign-up sheet.
- Tell them that you are going to go look for him & while you do, to go ahead & look over the bio sheet from the speaker. Hand them the sheet.
- Go "look" for Greg/Mark—go out through the big room & wait about 30 sec. Return & say:
  o *I couldn't find him, but we need to get started since we're running behind (if late) or since it's running longer than we planned. .*
- Then go to desk and get the 2nd bio sheet. Say:
  o *Sometimes we collaborate with other departments & it works out because we can both get something out of it (like hit 2 birds with 1 stone…).*
  o *Today you will be watching a 2 min part of a speech given by a speech communications major that he gave during a class.*
  o *His professor wants outside raters to rate his speech, and your ratings will be taken into consideration when his teacher figures out his final grade.*

- Give them the clipboard with the ratings sheet attached & tell them that they can rate the speaker while they are watching the video as they get a taste of it, or after it's done.
- Start the video.
- Stop the video after 2 min—shortly after he starts talking about emergent leadership.
- Have them finish the ratings if they haven't already & take them up.
- Hand them the packet with attitude ratings. Say:
  o *These are similar to some that you've seen before. Go ahead and complete the packet & let me know when you are done & then you have 1 thing left.*
- When they're done, take the packet—tear off last page. Hand it back to them w/the lined page. Say:
  o *Use this (the 1 you tore off) to complete this page (the lined one). Read the instructions (if a former mental patient tell them they can use fmp as an abbreviation) & use the back if you need more room.*
- When they are done collect the packet & thank them. Hand them their credit slips to fill out.

### Debriefing

- Ask them if they have any ideas of what the study was about.
  o If yes, find out what they think they know. If they KNOW, make a note of it after they leave so I can take that into consideration when analyzing.
  o A lot of people say they knew after a while there wasn't another participant, but this is ok as long as we note where they sit asap.
- Say:
  o *1<sup>st</sup> of all, there was no other participant & the speaker was a friend, not an actual student.*
  o *Basically we are looking to see how you rate the speaker based on what you wrote last week & some ratings you gave during the big event.*
- We don't want to tell them too much since we do a lot of this research & don't want to give it away.
- If they want to know more, they can contact me.
- Before they leave, say:
  o *We (or Angie, which ever you prefer) will be running this experiment throughout the semester and would like to ask you not to talk about this study with any other students or participants because it will ruin it for them.*
- **Look them in the eye & say:**
  o ***So I can trust you not to say anything?***
  o *Thanks & have a nice day!*
- Walk them out the back way through the big room. You can do some of the debriefing while you are walking through the big room.
- Tell them to go through the double doors and take the stairs on the right so they don't run into any other participants.

Appendix G

Gay Partner Demographic Questionnaire

Name:_Greg_____    Sex: M  F      Age:_20__      Classification:_Sophmore_____

Major:__Psychology_____ If Undecided, what major are you
considering?_____

Hobbies/Interests:

Strength(s) (good qualities you see in yourself): helpful, hard working

Weakness(es) (poor qualities you see in yourself): stubborn, short-tempered sometimes

In the space below, please tell us about a great experience you have had in the past few years
and why you think it's great:

Coming out to my family. Last year I told my family that I was gay and they were totally
great about it and said that they would accept and love me no matter what. Trying to hide
something like being gay is very stressful. I feel so much better now that I don't have to try
to hide that I'm gay from them. Trying to hide something like being gay is very stressful.

*Note: The demographic questionnaires given to students were filled out by hand.*

Appendix H

Former Mental Patient Partner Demographic Questionnaire

Name:_Mark_____ Sex: M  F      Age:_20__     Classification:_Sophmore_____

Major:__Psychology_____ If Undecided, what major are you considering?_____

Hobbies/Interests:

Strength(s) (good qualities you see in yourself): helpful, hard working

Weakness(es) (poor qualities you see in yourself): stubborn, short-tempered sometimes

In the space below, please tell us about a great experience you have had in the past few years and why you think it's great:

Coming out to my family. Last year I told my family that I was gay and they were totally great about it and said that they would accept and love me no matter what. Trying to hide something like being gay is very stressful. I feel so much better now that I don't have to try to hide that I'm gay from them. Trying to hide something like being gay is very stressful.

*Note: The demographic questionnaires given to students were filled out by hand.*

Appendix I

Gay Speaker Demographic Questionnaire

Name:_Greg_____ Sex: M  F     Age:_20_     Classification:_Sophmore_____

Major:__Communications_____ If Undecided, what major are you considering?_____

Hobbies/Interests:

Strength(s) (good qualities you see in yourself): helpful, hard working

Weakness(es) (poor qualities you see in yourself): stubborn, short-tempered sometimes

In the space below, please tell us about a great experience you have had in the past few years and why you think it's great:

Coming out to my family. Last year I told my family that I was gay and they were totally great about it and said that they would accept and love me no matter what. Trying to hide something like being gay is very stressful. I feel so much better now that I don't have to try to hide that I'm gay from them. Trying to hide something like being gay is very stressful.

*Note: The demographic questionnaires given to students were filled out by hand.*

Appendix J

Former Mental Patient Speaker Demographic Questionnaire

Name:_Mark_____ Sex: M  F       Age:_20__      Classification:_Sophmore_____

Major:__Communications_____ If Undecided, what major are you considering?_____

Hobbies/Interests:

Strength(s) (good qualities you see in yourself): helpful, hard working

Weakness(es) (poor qualities you see in yourself): stubborn, short-tempered sometimes

In the space below, please tell us about a great experience you have had in the past few years and why you think it's great:

Getting accepted to TCU. A few years ago I would have never thought I could be in college, or even graduate from high school. I was diagnosed with severe depression when I was in high school. I lost a lot of friends and was failing all my classes because of my depression. My parents sent me to a doctor who helped me. Now I am doing well in my classes, have lots of friends, and couldn't be happier.

*Note: The demographic questionnaires given to students were filled out by hand.*

Appendix K

Speaker Ratings

*Please rate the speaker on the following items.*

How well did the speaker enunciate?

| -5 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 |
|----|----|----|----|----|---|---|---|---|---|---|
| most<br>negative<br>rating | | | | | Neutral | | | | | most<br>positive<br>rating |

How well did his sentences flow?

| -5 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 |
|----|----|----|----|----|---|---|---|---|---|---|
| most<br>negative<br>rating | | | | | Neutral | | | | | most<br>positive<br>rating |

How good was his overall voice quality?

| -5 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 |
|----|----|----|----|----|---|---|---|---|---|---|
| most<br>negative<br>rating | | | | | Neutral | | | | | most<br>positive<br>rating |

How good was his physical poise and posture?

| -5 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 |
|----|----|----|----|----|---|---|---|---|---|---|
| most<br>negative<br>rating | | | | | Neutral | | | | | most<br>positive<br>rating |

How did his gestures and mannerisms affect the talk?

| -5 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 |
|----|----|----|----|----|---|---|---|---|---|---|
| most<br>negative<br>rating | | | | | Neutral | | | | | most<br>positive<br>rating |

Appendix L

Attitude Questionnaire

*Please circle your answer.*

What is your attitude toward politicians?

|  | -5 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | very |  |  |  |  | Neutral |  |  |  |  |  | very |
|  | negative |  |  |  |  |  |  |  |  |  |  | positive |

What is your attitude toward obese people?

|  | -5 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | very |  |  |  |  | Neutral |  |  |  |  |  | very |
|  | negative |  |  |  |  |  |  |  |  |  |  | positive |

What is your attitude toward gay men?

|  | -5 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | very |  |  |  |  | Neutral |  |  |  |  |  | very |
|  | negative |  |  |  |  |  |  |  |  |  |  | positive |

What is your attitude toward fraternity members?

|  | -5 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | very |  |  |  |  | Neutral |  |  |  |  |  | very |
|  | negative |  |  |  |  |  |  |  |  |  |  | positive |

What is your attitude toward sorority members?

|  | -5 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | very |  |  |  |  | Neutral |  |  |  |  |  | very |
|  | negative |  |  |  |  |  |  |  |  |  |  | positive |

What is your attitude toward former mental patients?

|  | -5 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | very |  |  |  |  | Neutral |  |  |  |  |  | very |
|  | negative |  |  |  |  |  |  |  |  |  |  | positive |

What is your attitude towards former substance abusers?

|  | -5 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | very |  |  |  |  |  |  |  |  |  |  | very |
|  | negative |  |  |  | Neutral |  |  |  |  |  |  | positive |

What is your attitude toward professors?

|  | -5 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | very |  |  |  |  |  |  |  |  |  |  | very |
|  | negative |  |  |  | Neutral |  |  |  |  |  |  | positive |

Appendix M

For each action that you circled on the previous page, please state briefly when you took that action and what the circumstances were (e.g., "I had a fight with xxxx when I was in high school, in the school gym", etc.).

1. _____

2. _____

3. _____

4. _____

Appendix N

*2 (Essay Target: Gay Man, Former Mental Patient) X 2 (Seat Target: Gay Man, Former Mental Patient) X 2 (False Memories: Present, Absent) ANOVA on Seating Distance.*

Tests of Between-Subjects Effects
Dependent Variable: Distance Sat Away From Target in Centimeters

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Corrected Model | 4516.575 | 7 | 645.225 | 4.196 | .000 |
| Intercept | 676190.961 | 1 | 676190.961 | 4397.449 | .000 |
| essaytar | 25.791 | 1 | 25.791 | .168 | .683 |
| seattar | 1.516 | 1 | 1.516 | .010 | .921 |
| fmcat | 1144.670 | 1 | 1144.670 | 7.444 | .007 |
| essaytar * seattar | 675.039 | 1 | 675.039 | 4.390 | .039 |
| essaytar * fmcat | 9.530 | 1 | 9.530 | .062 | .804 |
| seattar * fmcat | 358.138 | 1 | 358.138 | 2.329 | .130 |
| essaytar * seattar * fmcat | 635.007 | 1 | 635.007 | 4.130 | .045 |
| Error | 16145.734 | 105 | 153.769 | | |
| Total | 852214.489 | 113 | | | |
| Corrected Total | 20662.310 | 112 | | | |

a  R Squared = .219 (Adjusted R Squared = .166)

Appendix O

*Regression Predicting Seating Distance From Essay Target (Gay Man, Former Mental Patient), Seat Target (Gay Man, Former Mental Patient), and Total False Memories (0, 1, 2, 3).*

Coefficients

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 91.257 | 2.655 | | 34.370 | .000 |
| | Essay Target | -2.648 | 2.554 | -.097 | -1.036 | .302 |
| | Seat Target | -2.960 | 2.595 | -.109 | -1.140 | .257 |
| | Total False Memories | -2.127 | 1.319 | -.155 | -1.613 | .110 |
| 2 | (Constant) | 83.361 | 3.360 | | 24.812 | .000 |
| | Essay Target | 6.663 | 4.149 | .244 | 1.606 | .111 |
| | Seat Target | 12.855 | 4.816 | .475 | 2.669 | .009 |
| | Total False Memories | 1.505 | 2.349 | .110 | .641 | .523 |
| | Essay X Seat | -16.166 | 4.979 | -.548 | -3.247 | .002 |
| | Essay X False Memory (Total) | -1.144 | 2.517 | -.077 | -.455 | .650 |
| | Seat X False Memory (Total) | -5.958 | 2.503 | -.433 | -2.381 | .019 |
| 3 | (Constant) | 84.705 | 3.665 | | 23.110 | .000 |
| | Essay Target | 4.339 | 4.859 | .159 | .893 | .374 |
| | Seat Target | 9.689 | 5.922 | .358 | 1.636 | .105 |
| | Total False Memories | 3.939E-02 | 2.839 | .003 | .014 | .989 |
| | Essay X Seat | -10.903 | 7.586 | -.370 | -1.437 | .154 |
| | Essay X False Memory (Total) | 1.410 | 3.748 | .095 | .376 | .708 |
| | Seat X False Memory (Total) | -3.293 | 3.828 | -.240 | -.860 | .392 |
| | Essay X Seat X False Memory (Total) | -4.658 | 5.062 | -.268 | -.920 | .360 |

a  Dependent Variable: Distance Sat Away From Target in Centimeters

Appendix P

*Regression Predicting Seating Distance From Essay Target (Gay Man, Former Mental Patient), Seat Target (Gay Man, Former Mental Patient), and Vividness.*

Coefficients

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 87.511 | 4.455 | | 19.642 | .000 |
| | Essay Target | -2.327 | 2.574 | -.085 | -.904 | .368 |
| | Seat Target | -3.799 | 2.569 | -.140 | -1.479 | .142 |
| | Total Vividness Open + Closed | 2.336E-02 | .054 | .041 | .430 | .668 |
| 2 | (Constant) | 80.225 | 7.659 | | 10.475 | .000 |
| | Essay Target | 15.054 | 8.351 | .552 | 1.803 | .074 |
| | Seat Target | 1.903 | 8.154 | .070 | .233 | .816 |
| | Total Vividness Open + Closed | 6.711E-02 | .107 | .117 | .629 | .531 |
| | Essay X Seat | -15.730 | 5.015 | -.534 | -3.137 | .002 |
| | Essay X Vividness (Total) | -.135 | .109 | -.384 | -1.244 | .216 |
| | Seat X Vividness (Total) | 4.202E-02 | .108 | .116 | .390 | .698 |
| 3 | (Constant) | 76.625 | 9.411 | | 8.142 | .000 |
| | Essay Target | 21.160 | 12.459 | .775 | 1.698 | .092 |
| | Seat Target | 8.002 | 12.319 | .296 | .650 | .517 |
| | Total Vividness Open + Closed | .121 | .134 | .211 | .900 | .370 |
| | Essay X Seat | -25.712 | 15.900 | -.872 | -1.617 | .109 |
| | Essay X Vividness (Total) | -.223 | .172 | -.634 | -1.298 | .197 |
| | Seat X Vividness (Total) | -4.873E-02 | .175 | -.134 | -.279 | .781 |
| | Essay X Seat X Vividness (Total) | .147 | .222 | .353 | .662 | .510 |

a  Dependent Variable: Distance Sat Away From Target in Centimeters

Appendix Q

*Regression Predicting Seating Distance From Essay Target (Gay Man, Former Mental Patient), Seat Target (Gay Man, Former Mental Patient), and Social Desirability.*

Coefficients

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 91.257 | 2.655 | | 34.370 | .000 |
| | Essay Target | -2.648 | 2.554 | -.097 | -1.036 | .302 |
| | Seat Target | -2.960 | 2.595 | -.109 | -1.140 | .257 |
| | Total False Memories | -2.127 | 1.319 | -.155 | -1.613 | .110 |
| 2 | (Constant) | 86.903 | 2.891 | | 30.065 | .000 |
| | Essay Target | 3.142 | 6.955 | .115 | .452 | .652 |
| | Seat Target | 5.070 | 6.503 | .187 | .780 | .437 |
| | Total False Memories | -2.359 | 1.278 | -.172 | -1.845 | .068 |
| | Essay X Seat | -15.853 | 4.985 | -.538 | -3.180 | .002 |
| | Essay X Social Desirability (Total) | .175 | .432 | .100 | .406 | .686 |
| | Seat X Social Desirability (Total) | 8.808E-02 | .439 | .048 | .201 | .841 |
| 3 | (Constant) | 86.899 | 2.904 | | 29.923 | .000 |
| | Essay Target | 3.834 | 8.428 | .141 | .455 | .650 |
| | Seat Target | 5.734 | 7.943 | .212 | .722 | .472 |
| | Total False Memories | -2.354 | 1.285 | -.172 | -1.833 | .070 |
| | Essay X Seat | -17.551 | 12.589 | -.595 | -1.394 | .166 |
| | Essay X Social Desirability (Total) | .125 | .551 | .071 | .227 | .821 |
| | Seat X Social Desirability (Total) | 3.268E-02 | .580 | .018 | .056 | .955 |
| | Essay X Seat X Social Desirability (Total) | .131 | .893 | .066 | .147 | .883 |

a  Dependent Variable: Distance Sat Away From Target in Centimeters

Appendix R

*2 (Essay Target: Gay Man, Former Mental Patient) X 2 (Attitude Target: Gay Man, Former Mental Patient) X 2 (False Memories: Absent, Present) ANOVA on Attitude Change.*

Tests of Within-Subjects Effects
Measure: MEASURE_1

| Source | | Type III Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| ATTTARGET | Sphericity Assumed | 48.241 | 1 | 48.241 | .768 | .383 |
| | Greenhouse-Geisser | 48.241 | 1 | 48.241 | .768 | .383 |
| | Huynh-Feldt | 48.241 | 1 | 48.241 | .768 | .383 |
| | Lower-bound | 48.241 | 1 | 48.241 | .768 | .383 |
| ATTTARGET * ESSAYTAR | Sphericity Assumed | 193.138 | 1 | 193.138 | 3.076 | .082 |
| | Greenhouse-Geisser | 193.138 | 1 | 193.138 | 3.076 | .082 |
| | Huynh-Feldt | 193.138 | 1 | 193.138 | 3.076 | .082 |
| | Lower-bound | 193.138 | 1 | 193.138 | 3.076 | .082 |
| ATTTARGET * FMCAT | Sphericity Assumed | 167.332 | 1 | 167.332 | 2.665 | .105 |
| | Greenhouse-Geisser | 167.332 | 1 | 167.332 | 2.665 | .105 |
| | Huynh-Feldt | 167.332 | 1 | 167.332 | 2.665 | .105 |
| | Lower-bound | 167.332 | 1 | 167.332 | 2.665 | .105 |
| ATTTARGET * ESSAYTAR * FMCAT | Sphericity Assumed | 21.307 | 1 | 21.307 | .339 | .561 |
| | Greenhouse-Geisser | 21.307 | 1 | 21.307 | .339 | .561 |
| | Huynh-Feldt | 21.307 | 1 | 21.307 | .339 | .561 |
| | Lower-bound | 21.307 | 1 | 21.307 | .339 | .561 |
| Error(TARGET) | Sphericity Assumed | 6780.230 | 108 | 62.780 | | |
| | Greenhouse-Geisser | 6780.230 | 108 | 62.780 | | |
| | Huynh-Feldt | 6780.230 | 108 | 62.780 | | |
| | Lower-bound | 6780.230 | 108 | 62.780 | | |

Tests of Between-Subjects Effects
Measure: MEASURE_1
Transformed Variable: Average

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Intercept | 14.478 | 1 | 14.478 | .181 | .672 |
| ESSAYTAR | 107.578 | 1 | 107.578 | 1.342 | .249 |
| FMCAT | 165.074 | 1 | 165.074 | 2.059 | .154 |
| ESSAYTAR * FMCAT | .837 | 1 | .837 | .010 | .919 |
| Error | 8658.388 | 108 | 80.170 | | |

Appendix S

*Regression Predicting Attitude Change From Essay Target (Gay Man, Former Mental Patient), Seat Target (Gay Man, Former Mental Patient), and Social Desirability.*

Coefficients

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | .374 | 1.981 | | .189 | .851 |
| | Essay Target | -1.697 | 1.216 | -.133 | -1.395 | .166 |
| | Seat Target | 1.113 | 1.217 | .088 | .915 | .362 |
| | Marlow-Crowne Social Desirability Scores | 5.576E-04 | .118 | .000 | .005 | .996 |
| 2 | (Constant) | 1.805 | 3.244 | | .556 | .579 |
| | Essay Target | -5.773 | 3.921 | -.451 | -1.472 | .144 |
| | Seat Target | 2.773 | 3.726 | .219 | .744 | .458 |
| | Marlow-Crowne Social Desirability Scores | -.121 | .206 | -.098 | -.586 | .559 |
| | Essay X Seat | -.483 | 2.490 | -.035 | -.194 | .847 |
| | Essay X Social Desirability (Total) | .329 | .248 | .400 | 1.324 | .188 |
| | Seat X Social Desirability (Total) | -.112 | .247 | -.130 | -.452 | .652 |
| 3 | (Constant) | 1.310 | 3.621 | | .362 | .718 |
| | Essay Target | -4.633 | 5.360 | -.362 | -.864 | .389 |
| | Seat Target | 3.888 | 5.164 | .307 | .753 | .453 |
| | Marlow-Crowne Social Desirability Scores | -8.621E-02 | .234 | -.070 | -.368 | .714 |
| | Essay X Seat | -2.558 | 7.077 | -.186 | -.361 | .719 |
| | Essay X Social Desirability (Total) | .248 | .359 | .301 | .691 | .491 |
| | Seat X Social Desirability (Total) | -.198 | .370 | -.230 | -.535 | .594 |
| | Essay X Seat X Social Desirability (Total) | .157 | .499 | .168 | .313 | .755 |

a  Dependent Variable: Mean Attitude Change

Appendix T

*2 (Essay Target: Gay Man, Former Mental Patient) X 2 (Speaker Target: Gay Man, Former Mental Patient) X 2 (False Memories: Absent, Present) ANOVA on Speaker Ratings.*

Tests of Between-Subjects Effects
Dependent Variable: Mean Speaker Ratings

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Corrected Model | 10.969 | 7 | 1.567 | .708 | .666 |
| Intercept | 180.217 | 1 | 180.217 | 81.392 | .000 |
| ESSAYTAR | 4.966E-03 | 1 | 4.966E-03 | .002 | .962 |
| SPEACHTA | .972 | 1 | .972 | .439 | .509 |
| FMCAT | 2.141 | 1 | 2.141 | .967 | .328 |
| ESSAYTAR * SPEACHTA | .229 | 1 | .229 | .103 | .749 |
| ESSAYTAR * FMCAT | .190 | 1 | .190 | .086 | .770 |
| SPEACHTA * FMCAT | .288 | 1 | .288 | .130 | .719 |
| ESSAYTAR * SPEACHTA * FMCAT | 5.807 | 1 | 5.807 | 2.623 | .108 |
| Error | 232.489 | 105 | 2.214 | | |
| Total | 455.520 | 113 | | | |
| Corrected Total | 243.458 | 112 | | | |

a  R Squared = .045 (Adjusted R Squared = -.019)

Appendix U

*Correlation matrix of Gay Men Attitudes at Time 1, Gay Men Attitudes at Time 2, Gay Men Attitude Change, Distance (in cm) Participants Sat Away From Partner's Belongings, Total False Memories, Marlow-Crowne Social Desirability Scores and Marx Vividness of Mental Imagery Scores for Participants Who Wrote Hypothetical Scenarios About Gay Men and Who's Seat Target was a Gay Man.*

Correlations

| | | Gay Men Attitude in BE | Gay Men Attitude Time 2 | Gay Man Attitude Change | Distance Sat Away From Target (cm) | Total False Memories | Social Desirability | Vividness |
|---|---|---|---|---|---|---|---|---|
| Gay Men Attitude Time 1 | Pearson Correlation | 1.000 | .808** | -.800** | -.047 | .266 | .297 | .312 |
| | Sig. (2-tailed) | . | .000 | .000 | .791 | .128 | .088 | .072 |
| | N | 34 | 34 | 34 | 34 | 34 | 34 | 34 |
| Gay Men Attitude Time 2 | Pearson Correlation | .808** | 1.000 | -.292 | -.171 | .315 | .394* | .254 |
| | Sig. (2-tailed) | .000 | . | .094 | .334 | .069 | .021 | .147 |
| | N | 34 | 34 | 34 | 34 | 34 | 34 | 34 |
| Gay Men Attitude Change | Pearson Correlation | -.800** | -.292 | 1.000 | -.097 | -.111 | -.081 | -.247 |
| | Sig. (2-tailed) | .000 | .094 | . | .584 | .532 | .648 | .158 |
| | N | 34 | 34 | 34 | 34 | 34 | 34 | 34 |
| Distance Sat Away From Target (cm) | Pearson Correlation | -.047 | -.171 | -.097 | 1.000 | -.439** | .130 | -.008 |
| | Sig. (2-tailed) | .791 | .334 | .584 | . | .009 | .464 | .964 |
| | N | 34 | 34 | 34 | 34 | 34 | 34 | 34 |
| Total False Memories | Pearson Correlation | .266 | .315 | -.111 | -.439** | 1.000 | -.107 | -.124 |
| | Sig. (2-tailed) | .128 | .069 | .532 | .009 | . | .547 | .486 |
| | N | 34 | 34 | 34 | 34 | 34 | 34 | 34 |
| Social Desirability | Pearson Correlation | .297 | .394* | -.081 | .130 | -.107 | 1.000 | .045 |
| | Sig. (2-tailed) | .088 | .021 | .648 | .464 | .547 | . | .802 |
| | N | 34 | 34 | 34 | 34 | 34 | 34 | 34 |
| Vividness | Pearson Correlation | .312 | .254 | -.247 | -.008 | -.124 | .045 | 1.000 |
| | Sig. (2-tailed) | .072 | .147 | .158 | .964 | .486 | .802 | . |
| | N | 34 | 34 | 34 | 34 | 34 | 34 | 34 |

\** Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

Appendix V

*Correlation matrix of Gay Men Attitudes at Time 1, Gay Men Attitudes at Time 2, Gay Men Attitude Change, Distance (in cm) Participants Sat Away From Partner's Belongings, Total False Memories, Marlow-Crowne Social Desirability Scores and Marx Vividness of Mental Imagery Scores for Participants Who Wrote Hypothetical Scenarios About Gay Men and Who's Seat Target was a Former Mental Patient.*

Correlations

| | | Gay Men Attitude Time 1 | Gay Men Attitude Time 2 | Gay Man Attitude Change | Distance Sat Away From Target (cm) | Total False Memories | Social Desirability | Vividness |
|---|---|---|---|---|---|---|---|---|
| Gay Men Attitude Time 1 | Pearson Correlation | 1.000 | .718** | -.765** | .080 | -.209 | .060 | -.148 |
| | Sig. (2-tailed) | . | .000 | .000 | .703 | .315 | .777 | .481 |
| | N | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| Gay Men Attitude Time 2 | Pearson Correlation | .718** | 1.000 | -.100 | .194 | -.154 | -.157 | -.071 |
| | Sig. (2-tailed) | .000 | . | .634 | .353 | .462 | .453 | .737 |
| | N | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| Gay Man Attitude Change | Pearson Correlation | -.765** | -.100 | 1.000 | .065 | .156 | -.231 | .146 |
| | Sig. (2-tailed) | .000 | .634 | . | .757 | .455 | .267 | .486 |
| | N | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| Distance Sat Away From Target (cm) | Pearson Correlation | .080 | .194 | .065 | 1.000 | -.280 | .010 | .147 |
| | Sig. (2-tailed) | .703 | .353 | .757 | . | .175 | .962 | .482 |
| | N | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| Total False Memories | Pearson Correlation | -.209 | -.154 | .156 | -.280 | 1.000 | .013 | -.014 |
| | Sig. (2-tailed) | .315 | .462 | .455 | .175 | . | .949 | .947 |
| | N | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| Social Desirability | Pearson Correlation | .060 | -.157 | -.231 | .010 | .013 | 1.000 | .036 |
| | Sig. (2-tailed) | .777 | .453 | .267 | .962 | .949 | . | .866 |
| | N | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| Vividness | Pearson Correlation | -.148 | -.071 | .146 | .147 | -.014 | .036 | 1.000 |
| | Sig. (2-tailed) | .481 | .737 | .486 | .482 | .947 | .866 | . |
| | N | 25 | 25 | 25 | 25 | 25 | 25 | 25 |

** Correlation is significant at the 0.01 level (2-tailed).

Appendix W

*Correlation matrix of Gay Men Attitudes at Time 1, Gay Men Attitudes at Time 2, Gay Men Attitude Change, Distance (in cm) Participants Sat Away From Partner's Belongings, Total False Memories, Marlow-Crowne Social Desirability Scores and Marx Vividness of Mental Imagery Scores for Participants Who Wrote Hypothetical Scenarios About Former Mental Patients and Who's Seat Target was a Former Mental Patient.*

Correlations

| | | Gay Men Attitude Time 1 | Gay Men Attitude Time 2 | Gay Man Attitude Change | Distance Sat Away From Target (cm) | Total False Memories | Social Desirability | Vividness |
|---|---|---|---|---|---|---|---|---|
| Gay Men Attitude Time 1 | Pearson Correlation | 1.000 | .805** | -.760** | -.322 | .162 | .059 | -.020 |
| | Sig. (2-tailed) | . | .000 | .000 | .125 | .448 | .783 | .925 |
| | N | 24 | 23 | 23 | 24 | 24 | 24 | 24 |
| Gay Men Attitude Time 2 | Pearson Correlation | .805** | 1.000 | -.226 | -.276 | .394 | -.090 | -.260 |
| | Sig. (2-tailed) | .000 | . | .299 | .202 | .063 | .682 | .230 |
| | N | 23 | 23 | 23 | 23 | 23 | 23 | 23 |
| Gay Man Attitude Change | Pearson Correlation | -.760** | -.226 | 1.000 | .258 | .138 | -.209 | -.215 |
| | Sig. (2-tailed) | .000 | .299 | . | .234 | .530 | .338 | .324 |
| | N | 23 | 23 | 23 | 23 | 23 | 23 | 23 |
| Distance Sat Away From Target (cm | Pearson Correlation | -.322 | -.276 | .258 | 1.000 | .002 | -.209 | .165 |
| | Sig. (2-tailed) | .125 | .202 | .234 | . | .991 | .328 | .441 |
| | N | 24 | 23 | 23 | 24 | 24 | 24 | 24 |
| Total False Memories | Pearson Correlation | .162 | .394 | .138 | .002 | 1.000 | -.102 | -.102 |
| | Sig. (2-tailed) | .448 | .063 | .530 | .991 | . | .634 | .636 |
| | N | 24 | 23 | 23 | 24 | 24 | 24 | 24 |
| Social Desirability | Pearson Correlation | .059 | -.090 | -.209 | -.209 | -.102 | 1.000 | .334 |
| | Sig. (2-tailed) | .783 | .682 | .338 | .328 | .634 | . | .111 |
| | N | 24 | 23 | 23 | 24 | 24 | 24 | 24 |
| Vividness | Pearson Correlation | -.020 | -.260 | -.215 | .165 | -.102 | .334 | 1.000 |
| | Sig. (2-tailed) | .925 | .230 | .324 | .441 | .636 | .111 | . |
| | N | 24 | 23 | 23 | 24 | 24 | 24 | 24 |

** Correlation is significant at the 0.01 level (2-tailed).

Appendix X

*Correlation matrix of Gay Men Attitudes at Time 1, Gay Men Attitudes at Time 2, Gay Men Attitude Change, Distance (in cm) Participants Sat Away From Partner's Belongings, Total False Memories, Marlow-Crowne Social Desirability Scores and Marx Vividness of Mental Imagery Scores for Participants Who Wrote Hypothetical Scenarios About Former Mental Patients and Who's Seat Target was a Gay Man.*

Correlations

| | | Gay Men Attitude Time 1 | Gay Men Attitudes Time 2 | Gay Man Attitude Change | Distance Sat Away From Target (cm) | Total False Memories | Social Desirability | Vividness |
|---|---|---|---|---|---|---|---|---|
| Gay Men Attitude Time 1 | Pearson Correlation | 1.000 | .718** | -.765** | .080 | -.209 | .060 | -.148 |
| | Sig. (2-tailed) | . | .000 | .000 | .703 | .315 | .777 | .481 |
| | N | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| Gay Men Attitudes Time 2 | Pearson Correlation | .718** | 1.000 | -.100 | .194 | -.154 | -.157 | -.071 |
| | Sig. (2-tailed) | .000 | . | .634 | .353 | .462 | .453 | .737 |
| | N | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| Gay Man Attitude Change | Pearson Correlation | -.765** | -.100 | 1.000 | .065 | .156 | -.231 | .146 |
| | Sig. (2-tailed) | .000 | .634 | . | .757 | .455 | .267 | .486 |
| | N | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| Distance Sat Away From Target (cm) | Pearson Correlation | .080 | .194 | .065 | 1.000 | -.280 | .010 | .147 |
| | Sig. (2-tailed) | .703 | .353 | .757 | . | .175 | .962 | .482 |
| | N | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| Total False Memories | Pearson Correlation | -.209 | -.154 | .156 | -.280 | 1.000 | .013 | -.014 |
| | Sig. (2-tailed) | .315 | .462 | .455 | .175 | . | .949 | .947 |
| | N | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| Social Desirability | Pearson Correlation | .060 | -.157 | -.231 | .010 | .013 | 1.000 | .036 |
| | Sig. (2-tailed) | .777 | .453 | .267 | .962 | .949 | . | .866 |
| | N | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| Vividness | Pearson Correlation | -.148 | -.071 | .146 | .147 | -.014 | .036 | 1.000 |
| | Sig. (2-tailed) | .481 | .737 | .486 | .482 | .947 | .866 | . |
| | N | 25 | 25 | 25 | 25 | 25 | 25 | 25 |

** Correlation is significant at the 0.01 level (2-tailed).

VITA

Personal Background

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ABSTRACT

BEHAVIORAL MEASURES OF FALSE MEMORIES

by Angela M. Junemann, 2006
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If attitudes can be altered by memories of past actions, then such changes should occur even when the memories are false or unlikely. Also, these memories should affect not just what people say, but what they do. Participants wrote hypothetical accounts of taking previously denied positive actions toward either gay men or former mental patients. One week later, they chose a seat on a bench with either a gay man or a former mental patient. Participants chose seats closer to the type of person toward whom they had imagined taking positive actions, but did so only when they "remembered" actually taking one or more of those actions. The results contribute to understanding how past actions affect current attitudes and behaviors.