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Creation of False Memories and Beliefs:
Expectancy Consistent Errors Based on Gender Stereotypes

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Senior Honors Project

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Westover Honors Program

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This study was a series of three experiments which examined the effects of gender stereotypes on the creation of false-memories. Participants were undergraduate students who viewed a short one-scene video depicting a couple on a date. The video featured a man and a woman displaying a mixture of typical, atypical, or a combination of both gender stereotypical behaviors. Following the video, participants completed a quiz to determine whether they created false memories consistent with gender stereotypes. Participants completed an attitudinal scale to gauge their views on gender stereotypes. It was hypothesized that participants would create stereotype-consistent false memories and that memories would be altered to be stereotype-consistent with the behavior of the man than with the behavior of the woman. This hypothesis was partially supported by the data. Participants were more likely to create stereotype-consistent false memories when quizzed about the men's atypical behavior.
Creation of false memories and beliefs:

expectancies based on gender stereotypes

In the 1990s, research expanded rapidly in the area of falsely created memories (Newman & Lindsay, 2009). This was largely associated with the sudden interest in what later were found out to be false reports of childhood sexual abuse. Many issues concerning false memories and their creation were highly debated including, whether therapists’ techniques were causing these fabrications, how confident are the reporters about their memories, are investigators too leading, and what preventative measures can be put in place to avoid false memory creation. Researchers have found the answers to some of these questions, but not all. Elizabeth Loftus led much of the research on false memory creation. For instance, she and colleagues studied whether the use of imagination could establish more confidence in false memories (Loftus & Pickrell, 1995). Others studied flashbulb memories, which are memories for when people heard of emotionally laden events (Brown and Kulik, 1977; Schmolck, Buffalo, and Squire, 2000). Common examples include the 9/11 attacks, the Kennedy assassination, and the Challenger explosion. Schmolck, Buffalo, and Squire (2000) found that while these types of memories are typically very vivid and participants seem to have high confidence in their accuracy, they can contain significant errors in memory.

One important distinction that has resulted from false memory research is that false memories are different from false beliefs. Beliefs are associated with a general knowing, while memories are associated with a person who has a detailed memory of a time or event (Newman & Lindsay, 2009). So the distinction here is that false memories actually have details and are specific and have the same characteristics as accurate memories. For example, if a young
woman returns home every day and places her keys in a bowl on her counter, then typically the next time she goes to leave she will believe that her keys are there. She will not remember specifically placing her keys there probably, because it is a typical event of the day that did not have great significance to her. However, if one day she goes to leave and knows her keys are there because she can recall the night before setting them down while her hands were full and spilling her coffee on her favorite pink scarf accidentally because of it, and so formed a specific, detailed memory of placing her keys in the bowl.

It is important to consider that false memories can be created in various ways, whether it is by cultural bias, leading questioning, interviewer bias, or by priming (Ceci & Huffman, 1995; Bartlett, 1932). Research concerning how memories could be affected and distorted began almost a century ago with Bartlett (Bergman & Roediger, 1999). In 1932 he published *Remembering: a study in experimental and social psychology* which details his experiments pertaining to how memories are created and recalled. The most famous of these experiments is probably The War of Ghosts experiment. For this experiment English college students were asked to read a North-American folktale (Berman & Roediger, 1999; Bartlett, 1932). Bartlett chose a North-American folktale because it was culturally different from what his participants would have been familiar with, it was intellectually less sophisticated (the sequence of events was slightly irrational), and the events in the tale were dramatic and were likely to produce vivid imagery (Bartlett, 1932). Participants were instructed to read through the tale twice; then 15 minutes later they were asked to recall the tale as exactly as possible. Not surprisingly, there were changes in the stories like the ones that happen to stories used in the telephone game in which one person tells another person a story. That person then tells another person, who tells another person, who tells another person and so on. By the time the final person is told the story and then relays it to the crowd, he always has a completely distorted version of the original. One of his most important findings for this
current study was a phenomenon Bartlett referred to as “rationalization” (Berman & Roediger, 1999). This Bartlett explained:

The reproduction is a beautiful illustration of a strong tendency to rationalize, common to all of my subjects. Whenever anything appeared incomprehensible, or “queer”, it was either omitted or explained. Rather rarely this rationalization was the effect of a conscious effort. More often it was effected apparently unwittingly, the subject transforming his original without suspecting what he was doing. (Bartlett, 1932).

Bartlett also found that subjects made more “modern” and more culturally relevant changes. Also, there were words or phrases that were changed that seemed to fit better with what English college students would be most familiar with in their own lifestyles or society. “Canoe” became the more familiar “boat”, and when the characters had been said to have been hunting seals, in the recalled version many participants said they were “fishing” which would have been a more familiar hunting activity (Bartlett, 1932). This phenomenon of shifting words to more familiar ones could be explained somewhat by the concept of schemata which are “organized mental structures” (Bergman & Roediger 1999). These are frameworks which we use to understand our world (Brewer & Treyens, 1981). We have schemas for things such as offices. We assume offices have desks, books, and in this time we assume they will have computers (Brewer & Treyens, 1981). These cognitive structures make processing information more efficient because the knowledge fits into a logical order. However, when facts do not fit with schemas already in place, it appears that with repetition those facts may be altered to more closely fit with the schemas. As an example, if a student walks into a science professor’s office and sees books about art on the shelves, she may later either forget this fact or misremember the subject of the books as science related. As important as this research was, for years many researchers had difficulty replicating the results (Bergman & Roediger, 1999). Some have argued that Bartlett may have
instructed participants in a way so as to lead them to reconstruct rather than simply remember (Bergman & Roediger, 1999). However, Bergman and Roediger (1999) were finally able to replicate the results by following the method Bartlett (1932) originally used more closely. They found similar results over seventy years later demonstrating that this tendency to distort facts in our memories is a constant pattern and was not a phenomenon to a particular set of people at a particular time (Bergman & Roediger 1999).

Elizabeth Loftus also conducted research on how entire stories, or memories, can be fabricated by using vivid imagining of an event (Loftus, 1995). She conducted a study where she sent a booklet to participants with four stories about events that happened to them as children. Only three of the four stories actually happened to the individuals; the fourth was a fabricated story about the individual getting lost in a shopping mall. It was checked with family members that this had never actually happened to the participants. The participants were to record their memories of the 4 events, and then were later interviewed about the events. Interviews took place about 1-2 weeks after the participants received the booklet, and then 1-2 weeks after the initial interview. When asked to reflect on the false event before writing about it in the booklet, 7 of the 24 participants speculated as to how it could have happened and claimed they remembered parts of the event (Loftus, 1995). What is particularly fascinating about this study is that these participants were lead to create memories about what would be a personal event for them. The suggestion that the event had happened to them and reflecting on the details of the story led them to create at least partial memories of what happened. Considering that people can create memories that are relevant to their own personal history, the question remains whether there are causes of false memories of events encountered in daily life. When Loftus (1995) conducted her study on false memory creation, the subject matter (the story of being lost in the mall) was frequently reflected on as the War of Ghosts story was in Bartlett’s (1932) experiment, but many
memories are not reflected on at great length.

Memories include both visual and auditory aspects, and these are not just limited to what individuals imagine but what they also perceive from external stimuli. Vernon and Nelson (2000) conducted an experiment in which participants watched a short segment of a video and were later asked leading questions about what certain characters said. The one target question asked for participants to choose from multiple options of what a particular character said; the last option was “provide your own answer.” This character, however, had said nothing. Most participants chose one of the first answers, not opting to write in their own answer (Vernon & Nelson, 2000). Tousignant, Hall, and Loftus referred to this as the misinformation effect (1986). They found that misleading postevent information (MPI) was often incorporated into the memories of participant when reading a story of an event (Tousignant et al., 1986). Clearly, false memories can resemble true memories very closely in characteristics such as auditory and visual aspects, making it easier for the individual who holds the memory to believe its accuracy. In addition to investigator bias, leading questioning, suggestion, and internal biases in an individual can lead to false memory creation. These biases are referred to as stereotypes.

Gender stereotypes are some of the most prevalent stereotypes, so much so that from very early childhood individuals are taught a simple stereotype that girls like pink and boys like blue (Conkright, Flannagan, & Dykes, 2000). Gender stereotypes also tend to be more commonly understood, whereas with race, personality, ethnicity, or other stereotypical categories, there are usually various understandings of the categorical identities leading to contradicting stereotypes, some of which may not be familiar to all people. Many studies however have set precedent for stereotypical-consistent false memories dealing with gender stereotypes (Araya, Ekehammar, & Akrami, 2003; Frawley, 2008; Kleider, Goldinger, & Knuycky, 2008; Lenton, Blaire, & Hastie, 2001; Macrae, Schloderscheidt, Bodenhausen, & Milne, 2002; Roediger & McDermott, 1995).
Araya, Ekehammar, and Akrami (2003) used word-association exercises and the Deese-Roediger-McDermott (DRM) (Roediger & McDermott, 1995) paradigm to determine whether participants could be compelled to forget those words that were associated with stereotypes upon prompting. The DRM paradigm is a simple task that can be used to demonstrate one way individuals fabricate memories. The method involves using lists of words which are all related to specific target word, but that target word is not in the list. For example, in the list “bed, rest, awake, tired, dream, wake, night, blanket, doze, slumber, snore, pillow, peace, yawn, and drowsy” sleep would be the target word because those words are all related to sleep and the word sleep is not included (Roediger & McDermott, 1995). However, individuals who were given these lists and later asked to recall them would falsely remember the word sleep being present in the list (Roediger & McDermott 1995). Results of research by Araya et al.’s (2003) indicated that more errors for words were associated with the stereotypes than with the direct association of occupation. The experiment they conducted required participants to try to recall five lists, four of which were typical for experiments using the DRM paradigm. The fifth list was comprised of words which more directly related to the target word occupation or job, but less directly related to a specific gender. For example, in the occupation list that featured only jobs that are stereotypically held by women, participants were more likely to recall a job that was not on the list that was also stereotypically held by a woman. These errors were not only consistent with the direct association of occupation, but the indirect association of woman or man, which is stereotype-consistent (Araya et al., 2003).

Similarly, Macrae, Schloederscheidt, Bodenhausen, and Milne (2002), predicted that participants would be more likely to make expectancy-consistent errors when completing a word-pair recognition task (Macrae et al., 2002). In their experiment, the word-pairs were feminine or masculine names (e.g. Sally for a woman or John for a man) paired with feminine or
masculine roles (specifically hairdresser or mechanic). Some feminine names were paired with the role of hairdresser and others were paired with the role of mechanic. The same applied for the masculine names. For example, a stereotype-consistent pairing could be “Sally-hairdresser” or “Steve-mechanic”. A stereotype-inconsistent pairing could be “Bob-hairdresser” or “Susan-mechanic”. Recognition tasks involved having participants indicate whether or not they had seen the name before or whether it was new. If the participants indicated that the name had been seen before they were then prompted to indicate the profession paired with that name. Participants were more accurate when names when had been paired with an expectancy-consistent role (i.e. Diane-hairdresser). In addition, when “false alarm” errors (claiming to recognize a name that was not actually presented) were made in recognizing names, roles were more likely to be expectancy-consistent as well (Macrae et al., 2002).

In addition to determining whether false-memories were at least partially stereotype-induced, Macrae et al. (2002) also wanted to differentiate between the errors that were false-memories and those that were false-beliefs. Memories are detailed recollections of events including auditory, visual, tactile, or other aspects, whereas beliefs are general knowings without vivid details. In the second experiment of their study, they added an additional question to measure whether the participants thought they knew the information or remembered it (Macrae et al., 2002). To elaborate, if participants had an answer of “remember”, they were able to “mentally re-experience” the moment when they saw the words on the screen. An answer of “know” would indicate that participants could not recall a “detailed representation” of the moment the word appeared on the screen, but were confident they knew it had appeared (Macrae et al., 2002). The expectancy-consistent responses were typically associated with a knowing rather than a remembering; in this case beliefs were created and not memories.

Studies using the DRM paradigm involve only a simple word-recognition task, and
Macrae et al. (2002) found participants reported knowing, not remembering. These results suggest that false memories were not created, but false beliefs. Perhaps in more complex situations involving gender stereotypes, false-memories, as opposed to false-beliefs can be created. While stereotypes are a type of belief, a belief about how people in similar groups behave in a specific similar way, stereotypes are really a framework for how we store knowledge in memory. Because of this, even though stereotypes are beliefs, stereotypes would help to create memories whether those memories are accurate or not. It is important to examine how more complex tasks, such as recognizing events in a story, can be influenced by gender stereotypes.

In order to examine how children can create false-memories in line with gender stereotypes, Timothy Frawley read two books to 1st graders and then 4th graders (Frawley, 2008). Schemas for gender stereotypes begin to form at a young age (Conkright et al., 2000). So even young children can create false-memories guided by gender stereotypes. In his experiment, Frawley (2008) read two stories to both age groups of children and then followed with questions. The qualitative study looked for themes consistent among certain questions for different age groups. In the first story, there is a girl who befriends a man who used to be a great wire-walker, but now is too frightened to continue. In it, when she asks him to teach her how to do the same, he says he cannot; he is too frightened. The first graders tended to remember the story differently. Many of them remembered that the man was not afraid at all, but was worried the girl might get hurt. This false report, as well as others, is stereotype-consistent. The children distorted their memories so that they did not deviate from what they had learned to expect. These are examples of how young children not only can create false-memories, but also distort accurate memories to align with gender stereotypes. Children both assumed the fragility of the young girl, and forgot the fear of the man, both attributes which are not expectancy-consistent (Frawley, 2008).

Frawley (2008) also needed to examine whether distortion could occur if the story were
about a boy instead of a girl. In the next story, a young boy wishes to be a lamp-lighter for street lamps in a time when streetlamps ran on gas. The young boy’s father disapproves and kicks him out of the house. The boy responds by crying himself to sleep when no one can hear. Both ages were less likely to remember that the boy had cried (the older children would sometimes say he cried, but only a little), but the first graders also had a tendency to say that the sister of the boy cried, which she did not. Again, the truth is distorted in the minds of the participants because it is not expectancy-consistent (Frawley, 2008). Frawley’s (2008) study can serve as evidence that the more a person matures, the less likely she is to distort true memories, or create false-memories which are gender-consistent. This evidence may suggest that only young children are susceptible to creating false memories about more complex information such as a story, but in the next study Kleider, Goldinger, and Knuycky (2008) explore how adult memories can be faulty and falsely created as well.

In 2008, Kleider et al. explored gender stereotyped false-memory creation because they were interested in understanding eyewitness testimony accuracy more thoroughly. Kleider et al. (2008) was expanding on a previous study that involved having a series of slide pictures of a handyman and a family woman in the same home. The pictures followed a logical sequence, much like a story. Each picture contained one of the individuals doing either a gender typical activity (the woman doing laundry, the handyman working on plumbing) or a gender atypical activity (the woman working on plumbing, the handyman doing laundry). Participants were asked to watch the progressing story line and to remember the sequence for a later test. In addition to the slides, participants viewed a separate set of lines of narration (which were a part of the story, but not pictured) and then were asked to vividly imagine what the lines depicted. Later, in the recognition test, participants were asked to indicate when they remembered a task and to distinguish whether they had viewed a picture of it or read about it. Making this
distinction required them to discriminate between tasks seen and tasks vividly imagined. And
finally, there was the measure of whether the participants “knew” or “remembered” this
information in a similar way to Macrae et al. (2002; Kleider et al., 2008).

Results indicated that participants made more “false-alarms” (an incorrect answer that the
information had been seen previously) when the tasks were gender-consistent. In addition, for
those actions which were read and mistakenly thought to have been seen, participants reported
remembering (memory) those tasks as opposed to knowing (belief), which they reported more
for truly new tasks (Kleider, 2008). These results suggest that a false memory had been created
about the task and not just a false belief.

Based on this information, it is hypothesized that individuals who view characters
performing atypical gender behavior will adjust their memories to more accurately reflect gender
stereotypes rather than have them remain accurate to what actually happened.

Experiment 1

Method

Participants

Participants were 51 undergraduates (32 female, 19 male) at a small liberal arts college,
Lynchburg College, in Virginia. Participants ranged from 18 to 22 years in age, the mean age
being 19.5 years old. Most were juniors (32%), as well as freshmen (14%), sophomores (24%),
and seniors (30%).

Materials

Participants were given an informed consent form (see Appendix A). Participants then
completed the attitudinal scale to measure their attitudes towards gender roles and stereotypes
created by the experimenter (see Appendix B). After completing the survey, participants watched
one of two videos (see Appendix C for summaries of the videos). The first video portrayed a
scene where a man and a woman were having a conversation over a meal and each displayed behaviors in line with stereotypical norms. The second video showed the couple having the same type of conversation over a meal, but the couple displayed gender atypical behaviors. After the video, participants were given a blank piece of paper and asked to write down multiples of three for a minute as a distractor task. Next, participants received a memory recognition test of 10 multiple choice questions testing the knowledge of the behaviors of the couple in the video (see Appendix D). Only questions 1, 3, 4, 6, 7, & 9 actually were used to calculate accuracy because only those questions related to stereotypical behavior. Correct answers were given a value of 1, and incorrect answers were given a value of 0. Values were added to calculate a total score, and then the means between conditions were compared.

Procedure

Participants entered a classroom and sat at individual desks. Once all participants arrived the experiment began with an introduction from the experimenter about the study, and all participants read then signed the informed consent form (see Appendix A). Two copies were distributed to each individual. One was to be signed and collected by the experimenter for records, and the other was for the individuals to keep for personal records. Then the participants completed a survey (see Appendix B) to measure their attitudes and previously formed stereotypes related to gender. Once completed, the surveys were collected then participants watched one of two videos (see Appendix C). The participants then completed the quiz to measure for false memory creation (see Appendix E). After all participants were done, the experimenter then debriefed participants about the true nature of the study and asked each to leave the survey on the desk to be collected. After every participant had left the room the surveys were collected.

Results
Participants who viewed the video clip featuring gender atypical roles (M=5.51, SD=1.10) were significantly more likely to make errors, $t(50)=2.47, p=0.01$, than participants who viewed the video featuring typical gender roles (M=4.67, SD=0.78). When asked a question to gauge whether the date aspect of the video was understood, most participants (57.7%) answered that they could not tell if the pair in the video were romantically involved with each other. Most others answered that the two were not romantically involved (25%), and only 8 participants assumed the pair were a couple (15.4%).

**Discussion**

The results support the original hypothesis. Participants were significantly more likely to make stereotype-consistent errors. Participants in the gender typical group made significantly fewer errors than those in the gender atypical group. These results indicate that false-memories can be created using live-action scenarios where actions and conversations can be witnessed in a fluid, realistic fashion. All previous studies mentioned that examined scenarios involving people or characters used a spoken plot or still frames. A moving picture more closely resembles reality. One problem with Experiment 1 is that the implication of a romantic date did not appear to come across in the video. Because stereotypes for behavioral roles may be stricter for a romantic situation, perhaps this had an effect on responses. There was also no significant relationship between the attitudinal scale and the accuracy on the quiz. This result could be attributed to the fact that the scale was created by the experimenter and had not been previously validated. No measure was included to examine whether memories rather than beliefs were created. This measure was added to the next experiment.

**Experiment 2**

**Method**

**Participants**
Participants were 90 undergraduates (63 female, 27 male) at a small liberal arts college, Lynchburg College, in Virginia. Participants ranged from 18 to 34 years in age, the mean age being 20.1 years old. Most were freshmen (37.8%), followed in number by juniors (27.8%), then sophomores (23.3%), seniors (10%), and one fifth year senior (1.1%).

Materials

Participants were given an informed consent form (see Appendix E). Participants then completed a demographic sheet (see Appendix F) and the Sexist Attitudes Towards Women Scale (SATWS) to measure their attitudes towards gender roles and stereotypes and had been previously validated (see Appendix G) (Benson & Vincent, 1980). This scale was chosen because it addresses gender stereotypes, and a more desired scale (the Attitudes towards Women Scale) could not be obtained in time to use. After completing the survey, participants watched one of two videos (see Appendix H for summaries of the videos). The first video portrayed a scene in which a man and a woman were on a first date and each displayed behaviors in line with stereotypical gender norms. The second video also showed the couple on a first date, but the couple displayed gender atypical behaviors. The third video portrayed the couple in the same scenario, but with a mixture of typical and atypical behaviors. After the video, participants used a scrap piece of paper given earlier with the demographic sheet (see Appendix F) and the SATWS (see Appendix G) to write down multiples of three for 60 seconds. Next, participants received a quiz (see Appendix I) of 25 multiple choice questions testing the knowledge of the behaviors of the couple in the video. For each multiple choice question answers A, B, and C were possible answers while D was always “I don’t remember.” To distinguish between false memory or false belief creation, after each question whether the participants knew the information based on belief or memory as explained to them before taking the test. For questions answered with D, participants did not answer the belief or memory section. It is important to note that there was an
additional section not used in this study that participants completed. Before the 25 questions, participants were asked to summarize the video in their own words as thoroughly as possible including topics discussed by the couple. They were given five minutes to complete this task before the second half of the quiz was explained and could be completed. However, time did not allow for this information to be coded and analyzed. Scores were calculated similarly to the quiz used in Experiment. A total number of correct answers, of incorrect answers, and “I don’t remember” answers were calculated separately for each participant. To measure whether memories were created about the knowledge needed to answer the questions the number of “memory” answers for the questions were calculated as one point and all other answers (“belief” or no response) were calculated as zero points. The total number of points was taken for each participant to gauge overall memory.

Procedure

Participants entered a classroom where the experiment was being conducted. Each signed a roster to serve as evidence of participation in the experiment so that the student could receive extra credit. Participants sat at individual desks. As participants arrived they were handed two copies of the informed consent (see Appendix E). Participants were asked to read the form thoroughly, sign it, and hand it to the experiment if after reading they still wished to participate. Participants were also told they could keep the other copy for their own records. Then the participants completed the demographic sheet (see Appendix F) and SATWS (see Appendix G) to measure their attitudes and previously formed stereotypes related to gender. While the participants were completing these materials the experimenter passed out a scrap piece of paper and explained it would be used later. All participants completed these materials and then all were collected at once so participants may be more assured of anonymity. They then watched one of three videos (see Appendix H) depending on the condition chosen previously randomly. As soon
as the video was over the participants were asked to take the scrap piece of paper and write multiples of three for 60 seconds. The experimenter then handed out the quiz, and (see Appendix I), participants were asked to summarize what they saw. Participants were told to wait for all others to be done with the first part before continuing on to the second part. Once the five minutes for the first portion of the quiz was over participants were told to stop writing for part one, and the second half was explained as being a standard multiple choice quiz. Participants then finished the quiz and waited until all were done. Experimenters then debriefed participants about the true nature of the study and collected each test individually to again better assure the participants of anonymity.

Results

Participants who viewed the video clip featuring gender atypical roles were significantly more likely to answer correctly, $F= 3.65, p=0.03$, than participants who viewed the video featuring typical gender roles. Participants who viewed the video featuring typical gender roles were significantly more likely to answer with “I don’t remember,” $F=3.31, p=.03$, than participants who viewed the video featuring atypical gender roles. Participants who viewed the video featuring mixed gender roles were significantly more likely than those viewing typical gender roles, $F=5.39, p=.01$, and those viewing atypical gender roles, $F=5.39, p=.00$, to make mistakes and mark wrong answers on the quiz. There was no correlation between the scores of the SATWS and right or wrong answers.

As for memory creation, participants were significantly more likely to form memories not beliefs when viewing the video featuring atypical gender roles, $F=4.42, p=.02$, than participants who viewed the video featuring gender typical roles.

Discussion

Results partially support the original hypotheses. Participants were significantly more
likely to form memories when viewing atypical gender roles. This is reflected also by the fact that those participants were also significantly less likely to answer “I don’t remember.” Reasons for this pattern may be due to the novelty of the atypical gender behavior. Perhaps because the behavior was so abnormal when compared with pre-conceived gender stereotypes participants were more likely to make memories as opposed to beliefs. This may also be the reason why those participants were significantly more likely to make correct answers and therefore accurate memories. The hypothesis is supported by the fact that when some behaviors were not typical as in the mixed condition, participants were significantly more likely to make errors than all other participants. However, these were not memories. There is no evidence in the data that suggest concretely that more errors are made based in false memories as opposed to false beliefs. The only possibility for false memory creation is that perhaps the few wrong answers in the atypical condition were with those answers marked as memories. This relationship would mean that this condition was more likely to form false memories. These results do not support the hypothesis that false memories can be created using live-action scenarios where actions and conversations can be witnessed in a fluid, realistic fashion. All previous studies mentioned which examined scenarios involving people or characters used a spoken plot or still frames. A moving picture more closely resembles reality. However, if a longer video were used then there may be more context for memories to be created. Also, in Experiment 1 and Experiment 2 the attitude scale was given to participants before they watched the video. In order to be certain that the scale did not prime participants for the information they were about to be presented with and that the results were directly related to stereotypes alone, the scale should be presented after the video and all other measures have been presented.

Experiment 3

In reality, interactions between men and women are not usually completely stereotypical
or completely non-stereotypical. For this reason, the results of the mixed condition seemed most relevant for application to a real eye-witness scenario. The results indicated that this condition was also the most likely to produce inaccurate recall of events. In an effort to explore this further, the present study seeks to make clearer whether the inaccuracies would be more common for the mixed behaviors of a man or the mixed behaviors of a woman. It is hypothesized that there will be a significant difference in accuracy of answers to questions pertaining to different genders because when a woman displays mixed gender behaviors it is socially more acceptable to display what have been traditionally masculine behaviors than it is for a man to display what have been traditionally feminine behaviors. More likely, more false memories will be created for the man's behaviors. It is also hypothesized that this mixing will lead to the creation of false memories and not false beliefs. This hypothesis is maintained despite previously not being supported because the video length will be adjusted. This adjustment will perhaps provide more contexts for memories to be created. Memories require vivid details which may be harder to produce without a more extensive context for the facts at hand.

**Method**

**Participants**

Participants were 48 undergraduate (32 women, 16 men) students at a small liberal arts college in central Virginia. Participants ranged from 18 to 32 years in age with a mean age of 19.6. Many were freshmen (33.3%); most were sophomores (39.6%), and a there were few juniors (16.7%) and seniors (10.4%).

**Materials**

Participants were given an informed consent form (see Appendix J). Once participants had read and signed the informed consent form, they were given a demographic sheet (see
Appendix K). Once these were collected participants viewed the video (see Appendix L for a summary of the video). Once the video was over, participants were given a small piece of blank paper to use during the distractor task. Then the first portion of the quiz was distributed (see Appendix M). This portion was not graded or scored in any way but served the purpose to allow participants to reflect on the facts of the videos in their minds. Once participants finished those, they were collected and the second portion was distributed (see Appendix N). These were also collected once complete. Scores were calculated in a similar way to Experiment 1 and Experiment 2. Correct answers were assigned a value of one, and all other answers were given a value of zero. Scores were calculated separately for questions dealing with male typical behavior, male atypical behavior, female atypical behavior, and female typical behavior. Next, the Attitudes towards Women Scale (AWS) was distributed (see Appendix O). This is a 25-item attitude scale with questions in Likert scale form which has been previously validated (Spence, Helmreich, & Stapp 1973). This scale was used because it was shorter, and because it gauges general attitudes towards women while the SATWS is meant to gauge more prejudiced attitudes.

Procedure

Upon arrival participants were first presented with the informed consent agreement (see Appendix J). They received two copies of the agreement so that one could be used for record for their own use and one for my own records. Then participants filled out a demographic sheet (see Appendix K). Once these were collected then all participants viewed a video which was created specifically for this study (see Appendix L). It depicted two confederates acting as if they were on a date. The video was eight minutes long. After the viewing of the video, a distractor task was completed by having participants write down multiples of three for one minute. Then participants completed the first portion of the quiz (see Appendix M). This portion of the quiz was timed for five minutes to allow participants to summarize what they saw in the video. Participants were
asked to summarize both what they saw and what they heard discussed in the video. Participants were told when the time was halfway done and when there was only one minute left. The purpose of this portion is two-fold. It helps to have the participants revisit their memories and almost imagine what happened so that their memories may be allowed to be processed more deeply. Also, perhaps in the future there will be an opportunity to code the summaries for accurate memories. These were collected before the second portion was handed out so that participants would not be tempted to look back at their summaries during the quiz. The second portion (see Appendix N) was a multiple choice quiz much like the one used in the previous study, Experiment 2. Each question had four choices of A, B, C, and D. The answer D was always “I don’t remember.” After each question were the words “Memory or Belief,” and participants were instructed before beginning this portion of the quiz on how to complete that portion of the quiz. They were instructed to circle the word that “best described their confidence in their knowledge of that answer.” These quizzes were collected, and the participants were asked to complete the AWS (see Appendix O). Once they were all finished, the AWS were collected, and the participants were debriefed and dismissed.

Results

A two way analysis of variance tested whether there was a significant difference between the accuracy of answers in typicality of behavior, gender of the actor, and an interaction between the two. Participants were significantly more likely to get correct answers when they were asked questions about atypical behavior \( (F(1,47) = 20.52, p < .001) \) than when they were questioned about typical behaviors. Participants were more accurate for questions about the woman’s behavior \( (F(1,47) = 7.93, p < .001) \) than when answering questions about the man’s behavior. There was also a significant interaction of gender and typicality \( (F(1,47) = 31.56, p < .001) \) so that participants were more likely to have accurate answers that were typical for men \( (t(47) = - \)
6.83, \( p < .001 \), though for women there was no significant difference between typicality (\( t(47) = .52 \), \( p = .60 \)). A paired-samples t-test was conducted to compare whether participants were more likely to report a memory or a belief. A score for each category was calculated by counting the number of times each answer was given. There was a significant difference in the scores for memory (\( M=34.83, SD=4.75 \)) and belief (\( M=5.04, SD=3.67 \)) (\( t(46) = 26.685, p < .001 \)).

**Discussion**

The results supported the hypothesis that there is a difference between the accuracy of memories pertaining to gender. The fact that participants are more likely to have accurate memories of the woman’s behavior than the man’s is compatible with previous results. Because it is socially more acceptable for women to display mixed gender behaviors than it is for a man to display mixed gender behaviors then our schemas or stereotypes for women would be more flexible and memories would not be as strongly affected as with memories of men’s behavior. It is more likely that memories of men’s mixed behavior would be slightly distorted or adjusted so as to adhere better to a stricter stereotype. These results are consistent with the idea that atypical behavior leads to more accurate memories, especially for men. When the man in the video displayed atypical behavior it perhaps triggered a reversal of how information was encoded that worked better with the stereotype than a partial fulfillment. In other words, because atypical behaviors would be novel and unusual pieces of information, then the encoding of the man’s behavior is semantically classified as “not stereotypical”. However, stereotypes for women are more flexible and so allow for an accurate semantic encoding of mixed behavior. For instance, a woman can wear a button down shirt, dress slacks, and even a tie without drawing much attention for dressing masculine. However, if a man wears heels and a dress, then he will draw a lot of attention from passersby. This reaction is similar to how the 1st and 4th graders adjusted the story of the crying boy in Frawley’s (2008) experiment. The children heard about an atypical
behavior for a boy, and adjusted it. Some children said he did not cry at all, and that it was his sister. Other children said he cried, but only a little. Clearly there is some effect where the more unlikely the behavior is the higher the likelihood it will be distorted or forgotten.

Participants were also more likely to form memories rather than beliefs. These results supported the hypothesis that memories would be formed, and when considered along with the results on accuracy of information, it can be concluded that false memories are more likely to be formed when an individual views men behaving in atypical ways.

Having more participants in this study was helpful to get enough power to distinguish between conditions and reflect the population more accurately. Experiment 2 included only 15 participants in the mixed condition which proved problematic because there was not enough data to conduct the proper analysis. Also, having a longer video may have also contributed to a more accurate representation of how memories are encoded in real situations. The video was also edited to reflect a more accurate passing of time for the scenario at hand than the video in Experiment 2 (see Appendix H). In the video for Experiment 2, there was no cut or fade in the video which would usually imply a lapse in time. Instead, the video seemed to imply that the couple arrived, ate dinner, and said their goodbyes in a matter of six minutes, which is not realistic. While these problems were addressed there were other problems which could not be addressed due to various constraints. The quality of the video was not excellent due to having made the video myself and not being trained for it. Also, the confederates who performed as actors may have been recognized by participants considering they were also undergraduates at the same college. If they recognized the actors, it may have been distracting from encoding the information being presented. Participants would have been focusing on how the actor was their friend or classmate rather than seeing them as characters in a scene. Hopefully further research could address these problems. This experiment could also lead to further research using other
stereotypes or still gender stereotypes but in a different scenario. Another intriguing possibility would be to use a combination of stereotypes. The more that is understood about how false memories are created then there can be better direction in research on how to circumvent their creation.
References


APPENDIX A

Project title: Creating False Memories

Purpose of the research study: The purpose of this study is to investigate the relationship between gender stereotypes and false-memory creation.

What you will do in the study: You will be asked to complete an attitudinal measure for gender stereotypes. Then you will watch a short video which you will then be asked questions about in a short multiple choice test.

Time required: Including the time for the pretest the entire procedure will only take 30 minutes.

Risks: There are no risks.

Benefits: You will receive extra credit for participating in this study.

Confidentiality: The information that you give in the study will be handled confidentially. Your information will be assigned a code number. Your name will not be connected with this number and the information you provide. The only reason your name will be recorded is so you will receive extra credit. Your name will not be used in any report.

Voluntary participation: Your participation in the study is completely voluntary.

Right to withdraw from the study: You have the right to withdraw from the study at any time without penalty.

How to withdraw from the study: If you want to withdraw from the study, tell the experimenter quietly and leave the room. There is no penalty for withdrawing. You will still get class credit for participating in the study.

Payment: You will receive no payment for this study. You will receive participation credit from your class instructor.

Whom to contact if you have questions about the study: Dr. Stephen Southall (494 544 8313; southall@lynchburg.edu)

Experimenter: Arianna Stelling (434 401 3216; stelling_a@students.lynchburg.edu)

Whom to contact about your rights in the study: Bianca M. Sumutka, Ph.D., Psychology Department, Lynchburg College, Lynchburg, VA 24501. Telephone: 434/544-8546. Email: sumutka@lynchburg.edu

Agreement:

By signing below I agree to participate in the research study described above and verify that I am 18 years of age or older.

Signature: ___________________________ Date: ________

You will receive a copy of this form for your records.
APPENDIX B

AGE:

GENDER:

ACADEMIC YEAR:

RACE:

SEXUAL ORIENTATION:

On a scale of 1 to 6 rate your agreement with the statement.

1  2  3  4  5  6
   Strongly Agree   Strongly Disagree

1. Men and women are equally capable at physical activity.

1  2  3  4  5  6

2. Men are stronger than women.

1  2  3  4  5  6

3. I feel more comfortable if the wife stays at home instead of working.

1  2  3  4  5  6

4. There should be more women in executive or administrative positions.

1  2  3  4  5  6

5. The differences between men and women are due to society's expectations.

1  2  3  4  5  6

6. Women are weaker than men.

1  2  3  4  5  6

7. Women are more emotional than men.

1  2  3  4  5  6

8. Men are better at mathematics and science than women.

1  2  3  4  5  6

9. Men should provide for women.

1  2  3  4  5  6

10. Women care more about personal relationships than men do.

1  2  3  4  5  6

11. Women are more aggressive than men.
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<tr>
<td>12.</td>
<td>Women are quieter than men.</td>
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<td>13.</td>
<td>I believe women should have equal rights with men.</td>
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<td>14.</td>
<td>Women already have equal rights.</td>
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<td>15.</td>
<td>Women are to be valued as individuals.</td>
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<td>16.</td>
<td>Women should keep up their appearance and make sure to look their best at all times.</td>
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<td>17.</td>
<td>Men are more sexual than women.</td>
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<td>18.</td>
<td>I feel more comfortable around people of the same gender as me.</td>
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<td>19.</td>
<td>I feel uncomfortable when men act less like men and more like women.</td>
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<td>20.</td>
<td>I feel uncomfortable when women act less like women and more like men.</td>
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Video 1 (Typical Gender Behavior)

A man and a woman who appear to be romantically involved go to a restaurant and order food. The man orders for both himself and the woman who accompanies him, then he pays for both meals. The two sit down and the man pulls the chair out for the woman. A conversation follows where the man talks about his college class in engineering and a project he is working on for it. The woman returns with discussion about her personal problems she is having with her best friend who isn’t spending enough time with her. As the couple leaves, the woman clears the table and follows the man out of the restaurant.

Video 2 (Atypical Gender Behavior)

A man and a woman who appear to be romantically involved go to a restaurant and order food. The woman orders for both herself and the man who accompanies her. Then she pays for both meals. The two sit down and the woman pulls the chair out for the man. A conversation follows where the woman talks about her college class in engineering and a project she is working on for it. The man returns with discussion about his personal problems he is having with his best friend who isn’t spending enough time with him. As the couple leaves, the man clears the table and follows the woman out of the restaurant.
1. Who ordered the food?
   a. The man ordered for both
   b. The woman ordered for both
   c. Each ordered for themselves
   d. I don't remember
2. Are the two people in the video romantically involved?
   a. Yes
   b. No
   c. I can't tell
   d. I don't remember
3. What class was the project for?
   a. Engineering
   b. Biology
   c. Nursing
   d. I don't remember
4. Who suggested the couple get the meal together?
   a. The woman
   b. The man
   c. The video didn't say
   d. The video did say who, but I don't remember
5. Why was the (man/woman) upset?
   a. S/he had gotten in an argument with a friend
   b. S/he was feeling ignored by a friend
   c. S/he did not feel upset at all
   d. I don't remember
6. Who pulled out the chair for the other person?
   a. The man pulled out the chair for the woman
   b. The woman pulled out the chair for the man
   c. Neither, they each pulled out their own chairs
   d. I don't remember
7. Who paid for the food?
   a. The man paid
   b. The woman paid
   c. Each paid for his or her own food
   d. I don't remember
8. Was either of the pair drinking alcohol?
   a. Yes, the man was drinking alcohol
   b. Yes, the woman was drinking alcohol
   c. No, neither were drinking alcohol
   d. I don't remember
9. Who cleans the table as they leave the restaurant?
   a. The man
b. The woman
c. Neither, they leave their plates at the table
d. I don’t remember

10. How did the couple sit in relation to each other?
a. Across the table from each other
b. Next to each other on the same side of the table
c. I don’t remember
Informed Consent Agreement

Please read this consent agreement carefully before you decide to participate in the study

Project title: Memory Creation

Purpose of the research study: The purpose of this study is to examine the factors in memory creation.

What you will do in the study: You will complete an attitudinal scale. Then you will watch a brief video. Once the video is finished you will complete a quiz.

Time required: 30 Minutes

Risks: There are no risks.

Benefits: There are no direct benefits to you for participating in the study.

Confidentiality: The information that you give in the study will be handled confidentially. Your information will be assigned a code number. Your name will not be used in any report.

Voluntary participation: Your participation in the study is completely voluntary.

Right to withdraw from the study: You have the right to withdraw from the study at any time without penalty.

How to withdraw from the study: If you want to withdraw from the study, tell the experimenter quietly and leave the room. There is no penalty for withdrawing. You will still get class credit for participating in the study.

Payment: You will receive no payment for this study. You will receive participation credit from your class instructor.

Whom to contact if you have questions about the study: Dr. Virginia Cylke, Psychology Department, Lynchburg College, Lynchburg, VA 24501. Telephone: 434/544-8315. E-mail: cylke@lynchburg.edu

Experimenter: Arianna Stelling, 434 401 3216, stelling_a@students.lynchburg.edu

Whom to contact about your rights in the study: Bianca M. Sumutka, Ph.D., Psychology Department, Lynchburg College, Lynchburg, VA 24501. Telephone: 434/544-8546. Email: sumutka@lynchburg.edu

Agreement:

By signing below I agree to participate in the research study described above and verify that I am 18 years of age or older.

Signature: ____________________________ Date: ________
**Demographic Sheet**

Gender: __________

Age: ________

Class:

1st Year 2nd Year 3rd Year 4th Year

Race: ________________

Sexual Orientation:

Heterosexual Homosexual Bisexual Other

Political Affiliation:

Democratic Republican Independent Unaffiliated Other

Socioeconomic Status:

Lower Class Middle Class Upper Class
Please indicate your agreement with the statements below. Circle the appropriate number.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Moderately Agree</th>
<th>Slightly Agree</th>
<th>Neutral</th>
<th>Slightly Disagree</th>
<th>Moderately Disagree</th>
<th>Strongly Disagree</th>
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1. If I had a daughter, I would discourage her from working on cars.

2. I get angry at women who complain that American society is unfair to them.

3. Our society puts too much emphasis on beauty, especially for women.

4. Women shop more than men because they can't decide what to buy.

5. Most feminists are hopping on the bandwagon of protest just for the fun of it.

6. It bothers me when a man is interested in a woman only if she is pretty.

7. It bothers me to see a man being told what to do by a woman.

8. I think that having children is a woman's greatest fulfillment.

9. Men are instinctually more courageous than women in the face of danger.
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<tr>
<th>Strongly Agree</th>
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10. I think that women should spend a lot of time trying to be pretty.

   1   2   3   4   5   6   7

11. I can really understand why there needs to be a feminist movement.

   1   2   3   4   5   6   7

12. Women rely more on intuition and less on reason than men do.

   1   2   3   4   5   6   7

13. Women should not be as sexually active before marriage as men.

   1   2   3   4   5   6   7

14. Men are just as easily influenced by others as women are.

   1   2   3   4   5   6   7

15. I think women should be more concerned about their appearance than men.

   1   2   3   4   5   6   7

16. Men will always be the dominant sex.

   1   2   3   4   5   6   7

17. I dislike it when men treat women as sexual objects.

   1   2   3   4   5   6   7

18. I think that the husband should have the final say when a couple makes a decision.

   1   2   3   4   5   6   7

19. Women should have all the same rights as men.

   1   2   3   4   5   6   7

20. I see nothing wrong with a woman who doesn’t like to wear skirts or dresses.

   1   2   3   4   5   6   7
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<th>Strongly Agree</th>
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21. Women should be handled gently by men because they are so delicate.

22. Women should be prepared to oppose men in order to obtain equal status.

23. I am suspicious of a woman who would rather work than have children.

24. I think that women are naturally emotionally weaker than men.

25. On the average, women are as intelligent as men.

26. If a husband and wife both work full time, the husband should do half of the housework.

27. I like women who are outspoken.

28. I see nothing wrong with men whistling at shapely women.

29. It bothers me more to see a woman who is pushy than a man who is pushy.

30. A working wife should not be hired for a job if there is a family man who needs it.

31. Women can handle pressure just as well as men can when making a decision.
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<th>Strongly Agree</th>
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32. Men are naturally better than women at mechanical things.

1 2 3 4 5 6 7

33. A woman’s place is in the home.

1 2 3 4 5 6 7

34. I think that many TV commercials present a degrading picture of women.

1 2 3 4 5 6 7

35. I think a woman could do most things as well as a man.

1 2 3 4 5 6 7

36. I think that men are instinctually more competitive than women.

1 2 3 4 5 6 7

37. I think women have a right to be angry when they are referred to as a “broad”.

1 2 3 4 5 6 7

38. It would make me feel awkward to address a woman as “Ms”.

1 2 3 4 5 6 7

39. I see nothing wrong with men who are primarily interested in a woman’s body.

1 2 3 4 5 6 7

40. If I had a choice, I would just as soon work for a woman as a man.

1 2 3 4 5 6 7
Video 1 (Atypical):
A woman enters what appears to be her home with a man. As she pulls out his chair for him, the man thanks the woman for cooking dinner on their first date. She responds and asks how he liked the romantic comedy movie he picked. She then gets the dinner, and polite conversation follows. The woman mentions how she is a banker, likes to work out in her free time, recently watched the Army/Navy football game, and likes to eat a lot of meat. When her date comments on her wardrobe, she casually shrugs it off saying it was the only clean thing she had. The man mentions he is an elementary school teacher, likes to do water ballet and croquet in his spare time, doesn’t know about the Army/Navy teams at all, and likes to eat roast chicken and salads. When complimented on his clothing he mentions he got the shirt on sale. Throughout the video the woman’s legs are relaxed while the man’s are crossed. Once the meal is finished the woman clears the table and offers to drive the man home. They leave.

Video 2 (Typical):
A man enters what appears to be his home with a woman. As he pulls out her chair for her, the woman thanks the man for cooking dinner on their first date. He responds and asks how she liked the romantic comedy movie she picked. He then gets the dinner, and polite conversation follows. The man mentions how he is a banker, likes to work out in his free time, recently watched the Army/Navy football game, and likes to eat a lot of meat. When his date compliments him on his wardrobe, he casually shrugs it off saying it was the only clean thing he had. The woman mentions she is an elementary school teacher, likes to do water ballet and croquet in her spare time, doesn’t know about the Army/Navy teams at all, and likes to eat roast chicken and salads. When complimented on her clothing she mentions she got the shirt on sale. Throughout the video the man’s legs are relaxed while the woman’s are crossed. Once the meal is finished the man clears the table and offers to drive the man home. They leave.

Video 3 (Mixed):
A woman enters what appears to be her home with a man. As she pulls out his chair for him, the man thanks the woman for cooking dinner on their first date. She responds and asks how he liked the romantic comedy movie he picked. She then gets the dinner, and polite conversation follows. The woman mentions how she is a banker, likes to do water ballet and croquet in her free time, recently watched the Army/Navy football game, and likes to eat roast chicken and salads. When her date comments on her wardrobe, she casually shrugs it off saying it was the only clean thing she had. The man mentions he is an elementary school teacher, likes to work out at the gym in his spare time, doesn’t know about the Army/Navy teams at all, and likes to eat lots of meat. When complimented on his clothing he mentions he got the shirt on sale. Throughout the video the both the man and the woman have relaxed legs. Once the meal is finished the woman clears the table, and the man drives himself home.
APPENDIX I

No: __________

Please, as thoroughly and neatly as is possible, explain what happens in the film you just saw. Include what the pair discussed during dinner. You do not need to mention names, but you can simply use "The Man" or "The Woman" for the individuals in the video. After, complete the quiz, but do not return to your summary and change any details or make any additions. If you have any questions, please silently raise your hand, and I will come to you.
Please choose the most appropriate answer for each question for the video you have just seen and write the correct letter in the blank. For each question indicate whether you have a belief or memory of this information. If you mark "I don’t remember" you can ignore this portion of the instructions for that question.

1. What was the couple drinking?
   a. Beer
   b. Wine
   c. Soda
   d. I don’t remember

   Belief OR Memory

2. How did the person who did not live where the meal was eaten get home?
   a. Driven home by the man
   b. Driven home by the woman
   c. Drove home his/herself
   d. I don’t remember

   Belief OR Memory

3. What was served for dinner?
   a. Pasta and Potatoes
   b. Steak and Fries
   c. Roast Chicken and Salad
   d. I don’t remember

   Belief OR Memory

4. What were the man’s hobbies?
   a. Water ballet
   b. Going to the gym
   c. Playing football
   d. I don’t remember

   Belief OR Memory

5. Who was the banker?
   a. The man
   b. The woman
   c. Neither
   d. I don’t remember

   Belief OR Memory
6. Who was the elementary school teacher?
   a. The man
   b. The woman
   c. Neither
   d. I don't remember

7. Who was the nurse?
   a. The man
   b. The woman
   c. Neither
   d. I don't remember

8. Who was the mechanic?
   a. The man
   b. The woman
   c. Neither
   d. I don't remember

9. Where did the man get his clothes?
   a. It was just what was clean
   b. It was on sale
   c. It didn't say
   d. I don't remember

10. Who was smoking?
    a. The man
    b. The woman
    c. Neither
    d. I don't remember
11. Where did the woman get her clothes?
   a. It was just what was clean
   b. It was on sale
   c. It didn't say
   d. I don't remember

Belief OR Memory

12. What were the woman's hobbies?
   a. Water ballet
   b. Going to the gym
   c. Riding horses
   d. I don't remember

Belief OR Memory

13. Whose legs were crossed?
   a. The man's
   b. The woman's
   c. Neither
   d. I don't remember

Belief OR Memory

14. Who had better posture?
   a. The man
   b. The woman
   c. I'm not sure
   d. I don't remember

Belief OR Memory

15. Who made the meal?
   a. The man
   b. The woman
   c. They made it together
   d. I don't remember

Belief OR Memory
16. What was the genre of movie they saw?
   a. A Sci-fi
   b. A Drama
   c. A Romantic Comedy
   d. I don't remember

17. Who picked the movie?
   a. The man
   b. The woman
   c. They picked it together
   d. I don't remember

18. Did anyone burp during the film?
   a. Yes, the woman did
   b. Yes, the man did
   c. No, neither did
   d. I don't remember

19. Who pulled out the chair for the other?
   a. The man for the woman
   b. The woman for the man
   c. They each pulled out their own chairs
   d. I don't remember

20. Did the couple kiss?
   a. Yes, on the lips
   b. No
   c. Yes, on the cheek
   d. I don't remember
21. What did the man like to eat?
   a. Lots of meats
   b. Salad and roast chicken
   c. Sweets
   d. I don’t remember

   Belief OR Memory

22. What did the woman like to eat?
   a. Lots of meats
   b. Salad and roast chicken
   c. Sweets
   d. I don’t remember

   Belief OR Memory

23. What else did the couple talk about?
   a. The Army/Navy football game
   b. The ending space program
   c. Pets
   d. I don’t remember

   Belief OR Memory

24. What were the words on the back wall?
   a. “Let’s Eat”
   b. “Kiss the Cook”
   c. “Bon Appetit”
   d. I don’t remember

   Belief OR Memory

25. What was the occasion for the meal?
   a. An anniversary
   b. A first date
   c. A new friendship
   d. I don’t remember

   Belief OR Memory

Rate the Attractiveness of the man and woman on a scale of 1-10, 1 being least attractive and 10 being most attractive:

<table>
<thead>
<tr>
<th></th>
<th>Least Attractive</th>
<th>Most Attractive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Man:</td>
<td>1     2     3   4</td>
<td>5     6     7   8</td>
</tr>
<tr>
<td>Woman:</td>
<td>1     2     3   4</td>
<td>5     6     7   8</td>
</tr>
</tbody>
</table>
Informed Consent Agreement

Please read this consent agreement carefully before you decide to participate in the study

Project title: Memory Creation

Purpose of the research study: The purpose of this study is to examine the factors in memory creation.

What you will do in the study: You will watch a brief video. Once the video is finished you will complete a quiz.

Time required: 40 Minutes

Risks: There are no risks.

Benefits: There are no direct benefits to you for participating in the study.

Confidentiality: The information that you give in the study will be handled confidentially. Your information will be assigned a code number. Your name will not be used in any report.

Voluntary participation: Your participation in the study is completely voluntary.

Right to withdraw from the study: You have the right to withdraw from the study at any time without penalty.

How to withdraw from the study: If you want to withdraw from the study, tell the experimenter quietly and leave the room. There is no penalty for withdrawing. You will still get class credit for participating in the study.

Payment: You will receive no payment for this study. You will receive participation credit from your class instructor.

Whom to contact if you have questions about the study: Dr. Virginia Cylke, Psychology Department, Lynchburg College, Lynchburg, VA 24501. Telephone: 434/544-8315. E-mail: cylke@lynchburg.edu

Experimenter: Arianna Stelling, 434 401 3216, stelling_a@students.lynchburg.edu

Whom to contact about your rights in the study: Beth McKinney, PhD, MPH, CHES, Health Promotion Department, Lynchburg College, Lynchburg, VA 24501. Telephone: 434.544.8962. Email: mckinney.b@lynchburg.edu

Agreement:

By signing below I agree to participate in the research study described above and verify that I am 18 years of age or older.

Signature:___________________________ Date:_________
Demographic Sheet

Gender: ____________

Age: ______

Class:

1st Year 2nd Year 3rd Year 4th Year

Race: ______________

Sexual Orientation:

Heterosexual Homosexual Bisexual Other

Political Affiliation:

Democratic Republican Independent Unaffiliated Other

Socioeconomic Status:

Lower Class Middle Class Upper Class
Video Summary:
A man and a woman who are on date enter the man’s residence after having had dinner together at a restaurant. They discuss the pictures in the house, the décor of the house, and their personal hobbies. They talk about other things over drinks and a dessert that the man made as a surprise for his date. It is revealed that they have been dating for a week, and it appears as though they will continue to date. Once the dessert and conversation are over the woman goes to leave. The man asks her to stay, but she declines. The two hug before the woman leaves to go home.
APPENDIX M

No: ___________

Please, as thoroughly and neatly as is possible, explain what happens in the film you just saw. Include what the pair discussed during dinner. You do not need to mention names, but you can simply use "The Man" or "The Woman" for the individuals in the video. After, complete the quiz, but do not return to your summary and change any details or make any additions. If you have any questions, please silently raise your hand, and I will come to you. You will have five minutes.
APPENDIX N

1. Who opens the door?
   a. The man
   b. The woman
   c. I couldn’t tell
   d. I don’t remember

   Memory or Belief

2. At dinner, what did the man eat?
   a. Tilapia
   b. Steak
   c. Chicken
   d. I don’t remember

   Memory or Belief

3. At dinner, what did the woman eat?
   a. Tilapia
   b. Steak
   c. Chicken
   d. I don’t remember

   Memory or Belief

4. What did the pair have for dessert?
   a. Ice cream and brownies
   b. Mango sorbet
   c. Black cherry pie
   d. I don’t remember

   Memory or Belief

5. Which of the pair likes to play video games to relax?
   a. The man
   b. The woman
   c. Both
   d. I don’t remember

   Memory or Belief

6. Which of the pair likes to do yoga to relax?
   a. The man
   b. The woman
   c. Both
   d. I don’t remember

   Memory or Belief

7. Which of the pair likes to knit to relax?
   a. The man
   b. The woman
   c. Both
   d. I don’t remember

   Memory or Belief

8. Which of the pair enjoys playing hockey?
   a. The man
   b. The woman
   c. Both
   d. I don’t remember

   Memory or Belief

9. Which of the pair likes to lift weights to relax?
   a. The man
   b. The woman
   c. Both
   d. I don’t remember

   Memory or Belief

10. Which of the pair likes to read to relax?
    a. The man
    b. The woman
    c. Both
    d. I don’t remember

    Memory or Belief
11. Which of the pair likes to work on cars to relax?  
- a. The man  
- b. The woman  
- c. Both  
- d. I don’t remember

12. Which of the pair enjoys riding horses?  
- a. The man  
- b. The woman  
- c. Both  
- d. I don’t remember

13. Which of the pair volunteers in their free time?  
- a. The man  
- b. The woman  
- c. Both  
- d. I don’t remember

14. On the man’s boys’ night, what happened?  
- a. They went to a baseball game and had some beers  
- b. They went to a movie and then out to eat  
- c. They went to a bar then almost got into a fight  
- d. I don’t remember

15. On the woman’s girls’ night, what happened?  
- a. They went out to a club  
- b. They drank wine and caught-up with each other  
- c. They watched romantic movies together  
- d. I don’t remember

16. Ron and his boyfriend, Mark, are friends with whom?  
- a. The man  
- b. The woman  
- c. Both  
- d. I don’t remember

17. Who does Mr. Fluffy, the cat, belong to?  
- a. The man  
- b. The woman  
- c. Neither  
- d. I don’t remember

18. The woman prefers what kind of beverage?  
- a. Soda  
- b. Beer  
- c. Wine  
- d. I don’t remember

19. For the person who enjoys reading, what author does that person enjoy reading most?  
- a. Karl Marx  
- b. Nicholas Sparks  
- c. James Patterson  
- d. I don’t remember

20. Who made the dessert?  
- a. The man  
- b. The woman  
- c. Both  
- d. I don’t remember
<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
<th>Memory or Belief</th>
</tr>
</thead>
<tbody>
<tr>
<td>21. Of the pair, who burped while eating?</td>
<td>a. The man</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. The woman</td>
<td></td>
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<tr>
<td></td>
<td>c. Neither</td>
<td></td>
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<td></td>
<td>d. I don’t remember</td>
<td></td>
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<tr>
<td>22. Who has a job in the lab?</td>
<td>a. The man</td>
<td></td>
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<td></td>
<td>b. The woman</td>
<td></td>
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<td></td>
<td>c. Both</td>
<td></td>
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<td></td>
<td>d. I don’t remember</td>
<td></td>
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<tr>
<td>23. How did the couple say goodbye?</td>
<td>a. They kissed</td>
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<td></td>
<td>b. They hugged</td>
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<td></td>
<td>c. They walked out to the car together</td>
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<td></td>
<td>d. I don’t remember</td>
<td></td>
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<tr>
<td>24. Who proposed the next date?</td>
<td>a. The man</td>
<td></td>
</tr>
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<td></td>
<td>b. The woman</td>
<td></td>
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<td></td>
<td>c. Both</td>
<td></td>
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<td></td>
<td>d. I don’t remember</td>
<td></td>
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<tr>
<td>25. Who takes longer to get ready?</td>
<td>a. The man</td>
<td></td>
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<td></td>
<td>b. The woman</td>
<td></td>
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<tr>
<td></td>
<td>c. About the same</td>
<td></td>
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<td></td>
<td>d. I don’t remember</td>
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<tr>
<td></td>
<td>b. Beer</td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. Wine</td>
<td></td>
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<td></td>
<td>d. I don’t remember</td>
<td></td>
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<tr>
<td>27. What is the man’s major in school?</td>
<td>a. English</td>
<td></td>
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<td></td>
<td>b. Criminology</td>
<td></td>
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<tr>
<td></td>
<td>c. Biology</td>
<td></td>
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<tr>
<td></td>
<td>d. I don’t remember</td>
<td></td>
</tr>
<tr>
<td>28. Who received flowers on the date?</td>
<td>a. The man</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. The woman</td>
<td></td>
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<td></td>
<td>c. Neither</td>
<td></td>
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<tr>
<td></td>
<td>d. I don’t remember</td>
<td></td>
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<tr>
<td>29. Whose apartment do they go to after dinner?</td>
<td>a. The man</td>
<td></td>
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<tr>
<td></td>
<td>b. The woman</td>
<td></td>
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<tr>
<td></td>
<td>c. The video doesn’t say</td>
<td></td>
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<td></td>
<td>d. I don’t remember</td>
<td></td>
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<tr>
<td>30. How would you describe the décor of the house in one word?</td>
<td></td>
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<tr>
<td>31. Who makes the sexual advance?</td>
<td>a. The man</td>
<td></td>
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<tr>
<td></td>
<td>b. The woman</td>
<td></td>
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<tr>
<td></td>
<td>c. Neither</td>
<td></td>
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<tr>
<td></td>
<td>d. I don’t remember</td>
<td></td>
</tr>
</tbody>
</table>
32. Who talks more?
   a. The man
   b. The woman
   c. About the same
   d. I don't remember

37. How would you describe the date?
   a. Successful
   b. Friendly
   c. Awkward
   d. None of the above

33. Who is more knowledgeable about fantasy football?
   a. The man
   b. The woman
   c. About the same
   d. I don't remember

38. Who tells the story about a grill not being able to be lit?
   a. The man
   b. The woman
   c. Neither
   d. I don't remember

34. What was discovered at the lab?
   a. The theory of relativity may not be true
   b. A new drug for headaches
   c. A new vitamin that will help the aging
   d. I don't remember

39. Who has been doing fantasy football longer?
   a. The man
   b. The woman
   c. It's about the same
   d. I don't remember

35. What anniversary is this date?
   a. Month
   b. Week
   c. Year
   d. I don't remember

40. For the person who enjoys playing video games, what game do they play?
   a. Legend of Zelda
   b. Starfox
   c. Mario Party
   d. I don't remember

36. Who mentions the anniversary?
   a. The man
   b. The woman
   c. Both
   d. I don't remember

41. Who consumes more alcohol?
   a. The man
   b. The woman
   c. It's about the same
   d. I don't remember

Memory or Belief
42. Who hates shopping?
   a. The man
   b. The woman
   c. Both
   d. I don’t remember

Memory or Belief

43. Who has a family hunting trip?
   a. The man
   b. The woman
   c. Neither
   d. I don’t remember

Memory or Belief

44. What is the response to the sexual advance?
   a. Yes
   b. No
   c. There is no answer
   d. I don’t remember

Memory or Belief

45. Where were the flowers at?
   a. Left at the restaurant
   b. In the car
   c. At the other person’s apartment
   d. I don’t remember

Memory or Belief

46. What is the poster of by the door?
   a. Hugh Hefner
   b. Audrey Hepburn
   c. Marilyn Monroe
   d. I don’t remember

Memory or Belief

47. What color is the woman’s shirt?
   a. Maroon
   b. Dark Green
   c. Black
   d. I don’t remember

Memory or Belief

48. Who is more aggressive?
   a. The man
   b. The woman
   c. I can’t tell
   d. I don’t remember

Memory or Belief

49. Who is more social?
   a. The man
   b. The woman
   c. I can’t tell
   d. I don’t remember

Memory or Belief

50. Who talks more about family?
   a. The man
   b. The woman
   c. It’s about the same
   d. I don’t remember

Memory or Belief
The statements listed below describe attitudes toward the role of women in society that different people have. There are no right or wrong answers, only opinions. You are asked to express your feeling about each statement by indicating whether you agree based on the Likert scale below. Please circle the corresponding number.

<table>
<thead>
<tr>
<th>Strong Agree</th>
<th>Mildly Agree</th>
<th>Mildly Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

1. Swearing and obscenity are more repulsive in the speech of a woman than of a man.
2. Women should take increasing responsibility for leadership in solving the intellectual and social problems of the day.
3. Both husband and wife should be allowed the same grounds for divorce.
4. Telling dirty jokes should be mostly a masculine prerogative.
5. Intoxication among women is worse than intoxication among men.
6. Under modern economic conditions with women being active outside the home, men should share in household tasks such as washing dishes and doing the laundry.
7. It is insulting to women to have the “obey” clause remain in the marriage service.
8. There should be a strict merit system in job appointment and promotion without regard to sex.
9. A woman should be as free as a man to propose marriage.
10. Women should worry less about their rights and more about becoming good wives and mothers.
11. Women earning as much as their dates should bear equally the expense when they go out together.
12. Women should assume their rightful place in business and all the professions along with men.
13. A woman should not expect to go to exactly the same places or to have quite the same freedom of action as a man.
14. Sons in a family should be given more encouragement to go to college than daughters.

15. It is ridiculous for a woman to run a locomotive and for a man to darn socks.

16. In general, the father should have greater authority than the mother in the bringing up of children.

17. Women should be encouraged not to become sexually intimate with anyone before marriage, even their fiancés.

18. The husband should not be favored by law over the wife in the disposal of family property or income.

19. Women should be concerned with their duties of childbearing and housetending rather than with desires for professional and business careers.

20. The intellectual leadership of a community should be largely in the hands of men.

21. Economic and social freedom is worth far more to women than acceptance of the ideal of femininity which has been set up by men.

22. On the average, women should be regarded as less capable of contributing to economic production than are men.

23. There are many jobs in which men should be given preference over women in being hired or promoted.

24. Women should be given equal opportunity with men for apprenticeship in the various trades.

25. The modern girl is entitled to the same freedom from regulation and control that is given to the modern boy.